SEQUENCE LISTING

<110> AMUNIX OPERATING INC.

<120> FACTOR VIII COMPOSITIONS AND METHODS OF MAKING AND USING SAME

<130> 32808-734.601

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<150> 61/599,400
<151> 2012-02-15

<160> 1700

<170> PatentIn version 3.5

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<212> PRT
<213> Homo sapiens

<400> 1

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Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1               5                  10                  15


Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
            20                  25                  30


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


Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
    50                  55                  60


Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65                  70                  75                  80


Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
                85                  90                  95


Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
            100                 105                 110


His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
        115                 120                 125
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Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
    130                 135                 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145                 150                 155                 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
                165                 170                 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
            180                 185                 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
        195                 200                 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
    210                 215                 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225                 230                 235                 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
                245                 250                 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
            260                 265                 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
        275                 280                 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
    290                 295                 300

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

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
                325                 330                 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
            340                 345                 350
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```
Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
        355                 360                 365

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
    370                 375                 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385                 390                 395                 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
                405                 410                 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
            420                 425                 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
        435                 440                 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
    450                 455                 460

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465                 470                 475                 480

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
                485                 490                 495

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
            500                 505                 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
        515                 520                 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
    530                 535                 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545                 550                 555                 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
```

```
                565                 570                 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
            580                 585                 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
        595                 600                 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
    610                 615                 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625                 630                 635                 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
                645                 650                 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
            660                 665                 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
        675                 680                 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
    690                 695                 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705                 710                 715                 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
                725                 730                 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
            740                 745                 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
        755                 760                 765

Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp
    770                 775                 780
```

```
Ile Glu Lys Thr Asp Pro Trp Phe Ala His Arg Thr Pro Met Pro Lys
785                 790                 795                 800


Ile Gln Asn Val Ser Ser Ser Asp Leu Leu Met Leu Leu Arg Gln Ser
                805                 810                 815


Pro Thr Pro His Gly Leu Ser Leu Ser Asp Leu Gln Glu Ala Lys Tyr
            820                 825                 830


Glu Thr Phe Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn
        835                 840                 845


Ser Leu Ser Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly
    850                 855                 860


Asp Met Val Phe Thr Pro Glu Ser Gly Leu Gln Leu Arg Leu Asn Glu
865                 870                 875                 880


Lys Leu Gly Thr Thr Ala Ala Thr Glu Leu Lys Lys Leu Asp Phe Lys
                885                 890                 895


Val Ser Ser Thr Ser Asn Asn Leu Ile Ser Thr Ile Pro Ser Asp Asn
            900                 905                 910


Leu Ala Ala Gly Thr Asp Asn Thr Ser Ser Leu Gly Pro Pro Ser Met
        915                 920                 925


Pro Val His Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly Lys Lys
    930                 935                 940


Ser Ser Pro Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu
945                 950                 955                 960


Asn Asn Asp Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu
                965                 970                 975


Ser Ser Trp Gly Lys Asn Val Ser Ser Thr Glu Ser Gly Arg Leu Phe
            980                 985                 990


Lys Gly Lys Arg Ala His Gly Pro  Ala Leu Leu Thr Lys  Asp Asn Ala
        995                 1000                1005
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```
Leu Phe  Lys Val Ser Ile Ser  Leu Leu Lys Thr Asn  Lys Thr Ser
    1010                1015                1020

Asn Asn  Ser Ala Thr Asn Arg  Lys Thr His Ile Asp  Gly Pro Ser
    1025                1030                1035

Leu Leu  Ile Glu Asn Ser Pro  Ser Val Trp Gln Asn  Ile Leu Glu
    1040                1045                1050

Ser Asp  Thr Glu Phe Lys Lys  Val Thr Pro Leu Ile  His Asp Arg
    1055                1060                1065

Met Leu  Met Asp Lys Asn Ala  Thr Ala Leu Arg Leu  Asn His Met
    1070                1075                1080

Ser Asn  Lys Thr Thr Ser Ser  Lys Asn Met Glu Met  Val Gln Gln
    1085                1090                1095

Lys Lys  Glu Gly Pro Ile Pro  Pro Asp Ala Gln Asn  Pro Asp Met
    1100                1105                1110

Ser Phe  Phe Lys Met Leu Phe  Leu Pro Glu Ser Ala  Arg Trp Ile
    1115                1120                1125

Gln Arg  Thr His Gly Lys Asn  Ser Leu Asn Ser Gly  Gln Gly Pro
    1130                1135                1140

Ser Pro  Lys Gln Leu Val Ser  Leu Gly Pro Glu Lys  Ser Val Glu
    1145                1150                1155

Gly Gln  Asn Phe Leu Ser Glu  Lys Asn Lys Val Val  Val Gly Lys
    1160                1165                1170

Gly Glu  Phe Thr Lys Asp Val  Gly Leu Lys Glu Met  Val Phe Pro
    1175                1180                1185

Ser Ser  Arg Asn Leu Phe Leu  Thr Asn Leu Asp Asn  Leu His Glu
    1190                1195                1200

Asn Asn  Thr His Asn Gln Glu  Lys Lys Ile Gln Glu  Glu Ile Glu
    1205                1210                1215
```

```
Lys Lys  Glu Thr Leu Ile Gln  Glu Asn Val Val Leu  Pro Gln Ile
    1220                 1225                 1230

His Thr  Val Thr Gly Thr Lys  Asn Phe Met Lys Asn  Leu Phe Leu
    1235                 1240                 1245

Leu Ser  Thr Arg Gln Asn Val  Glu Gly Ser Tyr Asp  Gly Ala Tyr
    1250                 1255                 1260

Ala Pro  Val Leu Gln Asp Phe  Arg Ser Leu Asn Asp  Ser Thr Asn
    1265                 1270                 1275

Arg Thr  Lys Lys His Thr Ala  His Phe Ser Lys Lys  Gly Glu Glu
    1280                 1285                 1290

Glu Asn  Leu Glu Gly Leu Gly  Asn Gln Thr Lys Gln  Ile Val Glu
    1295                 1300                 1305

Lys Tyr  Ala Cys Thr Thr Arg  Ile Ser Pro Asn Thr  Ser Gln Gln
    1310                 1315                 1320

Asn Phe  Val Thr Gln Arg Ser  Lys Arg Ala Leu Lys  Gln Phe Arg
    1325                 1330                 1335

Leu Pro  Leu Glu Glu Thr Glu  Leu Glu Lys Arg Ile  Ile Val Asp
    1340                 1345                 1350

Asp Thr  Ser Thr Gln Trp Ser  Lys Asn Met Lys His  Leu Thr Pro
    1355                 1360                 1365

Ser Thr  Leu Thr Gln Ile Asp  Tyr Asn Glu Lys Glu  Lys Gly Ala
    1370                 1375                 1380

Ile Thr  Gln Ser Pro Leu Ser  Asp Cys Leu Thr Arg  Ser His Ser
    1385                 1390                 1395

Ile Pro  Gln Ala Asn Arg Ser  Pro Leu Pro Ile Ala  Lys Val Ser
    1400                 1405                 1410

Ser Phe  Pro Ser Ile Arg Pro  Ile Tyr Leu Thr Arg  Val Leu Phe
```

```
    1415                1420                1425

Gln Asp  Asn Ser Ser His Leu  Pro Ala Ala Ser Tyr  Arg Lys Lys
    1430                1435                1440

Asp Ser  Gly Val Gln Glu Ser  Ser His Phe Leu Gln  Gly Ala Lys
    1445                1450                1455

Lys Asn  Asn Leu Ser Leu Ala  Ile Leu Thr Leu Glu  Met Thr Gly
    1460                1465                1470

Asp Gln  Arg Glu Val Gly Ser  Leu Gly Thr Ser Ala  Thr Asn Ser
    1475                1480                1485

Val Thr  Tyr Lys Lys Val Glu  Asn Thr Val Leu Pro  Lys Pro Asp
    1490                1495                1500

Leu Pro  Lys Thr Ser Gly Lys  Val Glu Leu Leu Pro  Lys Val His
    1505                1510                1515

Ile Tyr  Gln Lys Asp Leu Phe  Pro Thr Glu Thr Ser  Asn Gly Ser
    1520                1525                1530

Pro Gly  His Leu Asp Leu Val  Glu Gly Ser Leu Leu  Gln Gly Thr
    1535                1540                1545

Glu Gly  Ala Ile Lys Trp Asn  Glu Ala Asn Arg Pro  Gly Lys Val
    1550                1555                1560

Pro Phe  Leu Arg Val Ala Thr  Glu Ser Ser Ala Lys  Thr Pro Ser
    1565                1570                1575

Lys Leu  Leu Asp Pro Leu Ala  Trp Asp Asn His Tyr  Gly Thr Gln
    1580                1585                1590

Ile Pro  Lys Glu Glu Trp Lys  Ser Gln Glu Lys Ser  Pro Glu Lys
    1595                1600                1605

Thr Ala  Phe Lys Lys Lys Asp  Thr Ile Leu Ser Leu  Asn Ala Cys
    1610                1615                1620
```

```
Glu Ser  Asn His Ala Ile Ala  Ala Ile Asn Glu Gly  Gln Asn Lys
    1625                 1630                 1635

Pro Glu  Ile Glu Val Thr Trp  Ala Lys Gln Gly Arg  Thr Glu Arg
    1640                 1645                 1650

Leu Cys  Ser Gln Asn Pro Pro  Val Leu Lys Arg His  Gln Arg Glu
    1655                 1660                 1665

Ile Thr  Arg Thr Thr Leu Gln  Ser Asp Gln Glu Glu  Ile Asp Tyr
    1670                 1675                 1680

Asp Asp  Thr Ile Ser Val Glu  Met Lys Lys Glu Asp  Phe Asp Ile
    1685                 1690                 1695

Tyr Asp  Glu Asp Glu Asn Gln  Ser Pro Arg Ser Phe  Gln Lys Lys
    1700                 1705                 1710

Thr Arg  His Tyr Phe Ile Ala  Ala Val Glu Arg Leu  Trp Asp Tyr
    1715                 1720                 1725

Gly Met  Ser Ser Ser Pro His  Val Leu Arg Asn Arg  Ala Gln Ser
    1730                 1735                 1740

Gly Ser  Val Pro Gln Phe Lys  Lys Val Val Phe Gln  Glu Phe Thr
    1745                 1750                 1755

Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg Gly Glu  Leu Asn Glu
    1760                 1765                 1770

His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg Ala Glu  Val Glu Asp
    1775                 1780                 1785

Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala Ser Arg  Pro Tyr Ser
    1790                 1795                 1800

Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu Asp Gln  Arg Gln Gly
    1805                 1810                 1815

Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro Asn Glu  Thr Lys Thr
    1820                 1825                 1830
```

```
Tyr Phe  Trp Lys Val Gln His  His Met Ala Pro Thr  Lys Asp Glu
    1835                1840                1845

Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser Asp Val  Asp Leu Glu
    1850                1855                1860

Lys Asp  Val His Ser Gly Leu  Ile Gly Pro Leu Leu  Val Cys His
    1865                1870                1875

Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg Gln Val  Thr Val Gln
    1880                1885                1890

Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp Glu Thr  Lys Ser Trp
    1895                1900                1905

Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys Arg Ala  Pro Cys Asn
    1910                1915                1920

Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu Asn Tyr  Arg Phe His
    1925                1930                1935

Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu Pro Gly  Leu Val Met
    1940                1945                1950

Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu Leu Ser  Met Gly Ser
    1955                1960                1965

Asn Glu  Asn Ile His Ser Ile  His Phe Ser Gly His  Val Phe Thr
    1970                1975                1980

Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala Leu Tyr  Asn Leu Tyr
    1985                1990                1995

Pro Gly  Val Phe Glu Thr Val  Glu Met Leu Pro Ser  Lys Ala Gly
    2000                2005                2010

Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu His Leu  His Ala Gly
    2015                2020                2025

Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn Lys Cys  Gln Thr Pro
    2030                2035                2040
```

```
Leu Gly  Met Ala Ser Gly His  Ile Arg Asp Phe Gln  Ile Thr Ala
    2045                 2050                 2055

Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys Leu Ala  Arg Leu His
    2060                 2065                 2070

Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr Lys Glu  Pro Phe Ser
    2075                 2080                 2085

Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met Ile Ile  His Gly Ile
    2090                 2095                 2100

Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser Ser Leu  Tyr Ile Ser
    2105                 2110                 2115

Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly Lys Lys  Trp Gln Thr
    2120                 2125                 2130

Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met Val Phe  Phe Gly Asn
    2135                 2140                 2145

Val Asp  Ser Ser Gly Ile Lys  His Asn Ile Phe Asn  Pro Pro Ile
    2150                 2155                 2160

Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr His Tyr  Ser Ile Arg
    2165                 2170                 2175

Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys Asp Leu  Asn Ser Cys
    2180                 2185                 2190

Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala Ile Ser  Asp Ala Gln
    2195                 2200                 2205

Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met Phe Ala  Thr Trp Ser
    2210                 2215                 2220

Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly Arg Ser  Asn Ala Trp
    2225                 2230                 2235

Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp Leu Gln  Val Asp Phe
```

2240 2245 2250

Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys
2255 2260 2265

Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser
2270 2275 2280

Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys
2285 2290 2295

Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val
2300 2305 2310

Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His
2315 2320 2325

Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu
2330 2335 2340

Gly Cys Glu Ala Gln Asp Leu Tyr
2345 2350

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<212> PRT
<213> Homo sapiens

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
```

```
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro Ser Thr Arg
            740                 745                 750

Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp Ile Glu Lys
        755                 760                 765

Thr Asp Pro Trp Phe Ala His Arg Thr Pro Met Pro Lys Ile Gln Asn
    770                 775                 780

Val Ser Ser Ser Asp Leu Leu Met Leu Leu Arg Gln Ser Pro Thr Pro
785                 790                 795                 800

His Gly Leu Ser Leu Ser Asp Leu Gln Glu Ala Lys Tyr Glu Thr Phe
                805                 810                 815

Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn Ser Leu Ser
            820                 825                 830

Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly Asp Met Val
        835                 840                 845

Phe Thr Pro Glu Ser Gly Leu Gln Leu Arg Leu Asn Glu Lys Leu Gly
    850                 855                 860

Thr Thr Ala Ala Thr Glu Leu Lys Lys Leu Asp Phe Lys Val Ser Ser
865                 870                 875                 880

Thr Ser Asn Asn Leu Ile Ser Thr Ile Pro Ser Asp Asn Leu Ala Ala
                885                 890                 895

Gly Thr Asp Asn Thr Ser Ser Leu Gly Pro Pro Ser Met Pro Val His
            900                 905                 910

Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly Lys Lys Ser Ser Pro
        915                 920                 925

Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu Asn Asn Asp
    930                 935                 940

Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu Ser Ser Trp
945                 950                 955                 960
```

```
Gly Lys Asn Val Ser Ser Thr Glu Ser Gly Arg Leu Phe Lys Gly Lys
               965                 970                 975

Arg Ala His Gly Pro Ala Leu Leu Thr Lys Asp Asn Ala Leu Phe Lys
           980                 985                 990

Val Ser Ile Ser Leu Leu Lys Thr  Asn Lys Thr Ser Asn  Asn Ser Ala
        995                1000                1005

Thr Asn  Arg Lys Thr His Ile  Asp Gly Pro Ser Leu  Leu Ile Glu
    1010                1015                1020

Asn Ser  Pro Ser Val Trp Gln  Asn Ile Leu Glu Ser  Asp Thr Glu
    1025                1030                1035

Phe Lys  Lys Val Thr Pro Leu  Ile His Asp Arg Met  Leu Met Asp
    1040                1045                1050

Lys Asn  Ala Thr Ala Leu Arg  Leu Asn His Met Ser  Asn Lys Thr
    1055                1060                1065

Thr Ser  Ser Lys Asn Met Glu  Met Val Gln Gln Lys  Lys Glu Gly
    1070                1075                1080

Pro Ile  Pro Pro Asp Ala Gln  Asn Pro Asp Met Ser  Phe Phe Lys
    1085                1090                1095

Met Leu  Phe Leu Pro Glu Ser  Ala Arg Trp Ile Gln  Arg Thr His
    1100                1105                1110

Gly Lys  Asn Ser Leu Asn Ser  Gly Gln Gly Pro Ser  Pro Lys Gln
    1115                1120                1125

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

Leu Ser  Glu Lys Asn Lys Val  Val Val Gly Lys Gly  Glu Phe Thr
    1145                1150                1155

Lys Asp  Val Gly Leu Lys Glu  Met Val Phe Pro Ser  Ser Arg Asn
```

```
    1160                1165                1170

Leu Phe  Leu Thr Asn Leu Asp  Asn Leu His Glu Asn  Asn Thr His
    1175                1180                1185

Asn Gln  Glu Lys Lys Ile Gln  Glu Glu Ile Glu Lys  Lys Glu Thr
    1190                1195                1200

Leu Ile  Gln Glu Asn Val Val  Leu Pro Gln Ile His  Thr Val Thr
    1205                1210                1215

Gly Thr  Lys Asn Phe Met Lys  Asn Leu Phe Leu Leu  Ser Thr Arg
    1220                1225                1230

Gln Asn  Val Glu Gly Ser Tyr  Asp Gly Ala Tyr Ala  Pro Val Leu
    1235                1240                1245

Gln Asp  Phe Arg Ser Leu Asn  Asp Ser Thr Asn Arg  Thr Lys Lys
    1250                1255                1260

His Thr  Ala His Phe Ser Lys  Lys Gly Glu Glu Glu  Asn Leu Glu
    1265                1270                1275

Gly Leu  Gly Asn Gln Thr Lys  Gln Ile Val Glu Lys  Tyr Ala Cys
    1280                1285                1290

Thr Thr  Arg Ile Ser Pro Asn  Thr Ser Gln Gln Asn  Phe Val Thr
    1295                1300                1305

Gln Arg  Ser Lys Arg Ala Leu  Lys Gln Phe Arg Leu  Pro Leu Glu
    1310                1315                1320

Glu Thr  Glu Leu Glu Lys Arg  Ile Ile Val Asp Asp  Thr Ser Thr
    1325                1330                1335

Gln Trp  Ser Lys Asn Met Lys  His Leu Thr Pro Ser  Thr Leu Thr
    1340                1345                1350

Gln Ile  Asp Tyr Asn Glu Lys  Glu Lys Gly Ala Ile  Thr Gln Ser
    1355                1360                1365
```

```
Pro Leu  Ser Asp Cys Leu Thr  Arg Ser His Ser Ile  Pro Gln Ala
    1370                 1375                 1380

Asn Arg  Ser Pro Leu Pro Ile  Ala Lys Val Ser Ser  Phe Pro Ser
    1385                 1390                 1395

Ile Arg  Pro Ile Tyr Leu Thr  Arg Val Leu Phe Gln  Asp Asn Ser
    1400                 1405                 1410

Ser His  Leu Pro Ala Ala Ser  Tyr Arg Lys Lys Asp  Ser Gly Val
    1415                 1420                 1425

Gln Glu  Ser Ser His Phe Leu  Gln Gly Ala Lys Lys  Asn Asn Leu
    1430                 1435                 1440

Ser Leu  Ala Ile Leu Thr Leu  Glu Met Thr Gly Asp  Gln Arg Glu
    1445                 1450                 1455

Val Gly  Ser Leu Gly Thr Ser  Ala Thr Asn Ser Val  Thr Tyr Lys
    1460                 1465                 1470

Lys Val  Glu Asn Thr Val Leu  Pro Lys Pro Asp Leu  Pro Lys Thr
    1475                 1480                 1485

Ser Gly  Lys Val Glu Leu Leu  Pro Lys Val His Ile  Tyr Gln Lys
    1490                 1495                 1500

Asp Leu  Phe Pro Thr Glu Thr  Ser Asn Gly Ser Pro  Gly His Leu
    1505                 1510                 1515

Asp Leu  Val Glu Gly Ser Leu  Leu Gln Gly Thr Glu  Gly Ala Ile
    1520                 1525                 1530

Lys Trp  Asn Glu Ala Asn Arg  Pro Gly Lys Val Pro  Phe Leu Arg
    1535                 1540                 1545

Val Ala  Thr Glu Ser Ser Ala  Lys Thr Pro Ser Lys  Leu Leu Asp
    1550                 1555                 1560

Pro Leu  Ala Trp Asp Asn His  Tyr Gly Thr Gln Ile  Pro Lys Glu
    1565                 1570                 1575
```

```
Glu Trp  Lys Ser Gln Glu Lys  Ser Pro Glu Lys Thr  Ala Phe Lys
    1580                1585                1590

Lys Lys  Asp Thr Ile Leu Ser  Leu Asn Ala Cys Glu  Ser Asn His
    1595                1600                1605

Ala Ile  Ala Ala Ile Asn Glu  Gly Gln Asn Lys Pro  Glu Ile Glu
    1610                1615                1620

Val Thr  Trp Ala Lys Gln Gly  Arg Thr Glu Arg Leu  Cys Ser Gln
    1625                1630                1635

Asn Pro  Pro Val Leu Lys Arg  His Gln Arg Glu Ile  Thr Arg Thr
    1640                1645                1650

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1655                1660                1665

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1670                1675                1680

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1685                1690                1695

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1700                1705                1710

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1715                1720                1725

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1730                1735                1740

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1745                1750                1755

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1760                1765                1770

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1775                1780                1785
```

```
Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1790                 1795                 1800

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1805                 1810                 1815

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1820                 1825                 1830

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1835                 1840                 1845

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1850                 1855                 1860

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1865                 1870                 1875

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1880                 1885                 1890

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1895                 1900                 1905

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1910                 1915                 1920

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1925                 1930                 1935

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1940                 1945                 1950

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1955                 1960                 1965

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1970                 1975                 1980

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
```

```
    1985                1990                1995

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    2000                2005                2010

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    2015                2020                2025

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    2030                2035                2040

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    2045                2050                2055

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    2060                2065                2070

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    2075                2080                2085

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    2090                2095                2100

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    2105                2110                2115

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    2120                2125                2130

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    2135                2140                2145

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    2150                2155                2160

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    2165                2170                2175

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    2180                2185                2190
```

```
Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    2195                 2200                 2205


Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    2210                 2215                 2220


Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    2225                 2230                 2235


Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    2240                 2245                 2250


Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    2255                 2260                 2265


His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    2270                 2275                 2280


Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    2285                 2290                 2295


Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    2300                 2305                 2310


Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    2315                 2320                 2325


Gln Asp  Leu Tyr
    2330


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<212> PRT
<213> Canus sp.

<400> 3
Met Gln Val Glu Leu Tyr Thr Cys Cys Phe Leu Cys Leu Leu Pro Phe
1               5                  10                  15


Ser Leu Ser Ala Thr Arg Lys Tyr Tyr Leu Gly Ala Val Glu Leu Ser
            20                  25                  30


Trp Asp Tyr Met Gln Ser Asp Leu Leu Ser Ala Leu His Ala Asp Thr
```

```
        35                  40                  45

Ser Phe Ser Ser Arg Val Pro Gly Ser Leu Pro Leu Thr Thr Ser Val
    50                  55                  60

Thr Tyr Arg Lys Thr Val Phe Val Glu Phe Thr Asp Asp Leu Phe Asn
65                  70                  75                  80

Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile
                85                  90                  95

Gln Ala Glu Val Tyr Asp Thr Val Val Ile Val Leu Lys Asn Met Ala
            100                 105                 110

Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala
        115                 120                 125

Ser Glu Gly Ala Glu Tyr Glu Asp Gln Thr Ser Gln Lys Glu Lys Glu
    130                 135                 140

Asp Asp Asn Val Ile Pro Gly Glu Ser His Thr Tyr Val Trp Gln Val
145                 150                 155                 160

Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Pro Cys Leu Thr Tyr
                165                 170                 175

Ser Tyr Phe Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu
            180                 185                 190

Ile Gly Ala Leu Leu Val Cys Lys Glu Gly Ser Leu Ala Lys Glu Arg
        195                 200                 205

Thr Gln Thr Leu Gln Glu Phe Val Leu Leu Phe Ala Val Phe Asp Glu
    210                 215                 220

Gly Lys Ser Trp His Ser Glu Thr Asn Ala Ser Leu Thr Gln Ala Glu
225                 230                 235                 240

Ala Gln His Glu Leu His Thr Ile Asn Gly Tyr Val Asn Arg Ser Leu
                245                 250                 255
```

```
Pro Gly Leu Thr Val Cys His Lys Arg Ser Val Tyr Trp His Val Ile
            260                 265                 270

Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His
        275                 280                 285

Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro
    290                 295                 300

Ile Thr Phe Leu Thr Ala Gln Thr Phe Leu Met Asp Leu Gly Gln Phe
305                 310                 315                 320

Leu Leu Phe Cys His Ile Pro Ser His Gln His Asp Gly Met Glu Ala
                325                 330                 335

Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys
            340                 345                 350

Asn Asn Glu Asp Lys Asp Tyr Asp Asp Gly Leu Tyr Asp Ser Asp Met
        355                 360                 365

Asp Val Val Ser Phe Asp Asp Asp Ser Ser Ser Pro Phe Ile Gln Ile
    370                 375                 380

Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala
385                 390                 395                 400

Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Ser Gly Pro Thr Pro Asn
                405                 410                 415

Asp Arg Ser His Lys Asn Leu Tyr Leu Asn Asn Gly Pro Gln Arg Ile
            420                 425                 430

Gly Lys Lys Tyr Lys Lys Val Arg Phe Val Ala Tyr Thr Asp Glu Thr
        435                 440                 445

Phe Lys Thr Arg Glu Ala Ile Gln Tyr Glu Ser Gly Ile Leu Gly Pro
    450                 455                 460

Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn
465                 470                 475                 480
```

```
Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Asn Tyr Val
                485                 490                 495

Thr Pro Leu His Thr Gly Arg Leu Pro Lys Gly Val Lys His Leu Lys
            500                 505                 510

Asp Met Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val
        515                 520                 525

Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg
    530                 535                 540

Tyr Tyr Ser Ser Phe Ile Asn Leu Glu Arg Asp Leu Ala Ser Gly Leu
545                 550                 555                 560

Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly
                565                 570                 575

Asn Gln Met Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe
            580                 585                 590

Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Met Gln Arg Phe Leu
        595                 600                 605

Pro Asn Ala Asp Val Val Gln Pro His Asp Pro Glu Phe Gln Leu Ser
    610                 615                 620

Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Asn Leu Gln Leu
625                 630                 635                 640

Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Val Gly
                645                 650                 655

Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys
            660                 665                 670

His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly
        675                 680                 685

Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Val Leu Gly
    690                 695                 700
```

```
Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys
705                 710                 715                 720

Val Ser Ser Cys Asn Arg Asn Ile Asp Asp Tyr Tyr Glu Asp Thr Tyr
                725                 730                 735

Glu Asp Ile Pro Thr Pro Leu Leu Asn Glu Asn Asn Val Ile Lys Pro
            740                 745                 750

Arg Ser Phe Ser Gln Asn Ser Arg His Pro Ser Thr Lys Glu Lys Gln
        755                 760                 765

Leu Lys Ala Thr Thr Thr Pro Glu Asn Asp Ile Glu Lys Ile Asp Leu
    770                 775                 780

Gln Ser Gly Glu Arg Thr Gln Leu Ile Lys Ala Gln Ser Val Ser Ser
785                 790                 795                 800

Ser Asp Leu Leu Met Leu Leu Gly Gln Asn Pro Thr Pro Arg Gly Leu
                805                 810                 815

Phe Leu Ser Asp Leu Arg Glu Ala Thr Asp Arg Ala Asp Asp His Ser
            820                 825                 830

Arg Gly Ala Ile Glu Arg Asn Lys Gly Pro Pro Glu Val Ala Ser Leu
        835                 840                 845

Arg Pro Glu Leu Arg His Ser Glu Asp Arg Glu Phe Thr Pro Glu Pro
    850                 855                 860

Glu Leu Gln Leu Arg Leu Asn Glu Asn Leu Gly Thr Asn Thr Thr Val
865                 870                 875                 880

Glu Leu Lys Lys Leu Asp Leu Lys Ile Ser Ser Ser Ser Asp Ser Leu
                885                 890                 895

Met Thr Ser Pro Thr Ile Pro Ser Asp Lys Leu Ala Ala Ala Thr Glu
            900                 905                 910

Lys Thr Gly Ser Leu Gly Pro Pro Asn Met Ser Val His Phe Asn Ser
```

```
        915                 920                 925

His Leu Gly Thr Ile Val Phe Gly Asn Asn Ser Ser His Leu Ile Gln
    930                 935                 940

Ser Gly Val Pro Leu Glu Leu Ser Glu Glu Asp Asn Asp Ser Lys Leu
945                 950                 955                 960

Leu Glu Ala Pro Leu Met Asn Ile Gln Glu Ser Ser Leu Arg Glu Asn
                965                 970                 975

Val Leu Ser Met Glu Ser Asn Arg Leu Phe Lys Glu Glu Arg Ile Arg
            980                 985                 990

Gly Pro Ala Ser Leu Ile Lys Asp  Asn Ala Leu Phe Lys  Val Asn Ile
        995                 1000                1005

Ser Ser  Val Lys Thr Asn Arg  Ala Pro Val Asn Leu  Thr Thr Asn
    1010                1015                1020

Arg Lys  Thr Arg Val Ala Ile  Pro Thr Leu Leu Ile  Glu Asn Ser
    1025                1030                1035

Thr Ser  Val Trp Gln Asp Ile  Met Leu Glu Arg Asn  Thr Glu Phe
    1040                1045                1050

Lys Glu  Val Thr Ser Leu Ile  His Asn Glu Thr Phe  Met Asp Arg
    1055                1060                1065

Asn Thr  Thr Ala Leu Gly Leu  Asn His Val Ser Asn  Lys Thr Thr
    1070                1075                1080

Leu Ser  Lys Asn Val Glu Met  Ala His Gln Lys Lys  Glu Asp Pro
    1085                1090                1095

Val Pro  Leu Arg Ala Glu Asn  Pro Asp Leu Ser Ser  Ser Lys Ile
    1100                1105                1110

Pro Phe  Leu Pro Asp Trp Ile  Lys Thr His Gly Lys  Asn Ser Leu
    1115                1120                1125
```

```
Ser Ser  Glu Gln Arg Pro Ser  Pro Lys Gln Leu Thr  Ser Leu Gly
    1130                1135                1140

Ser Glu  Lys Ser Val Lys Asp  Gln Asn Phe Leu Ser  Glu Glu Lys
    1145                1150                1155

Val Val  Val Gly Glu Asp Glu  Phe Thr Lys Asp Thr  Glu Leu Gln
    1160                1165                1170

Glu Ile  Phe Pro Asn Asn Lys  Ser Ile Phe Phe Ala  Asn Leu Ala
    1175                1180                1185

Asn Val  Gln Glu Asn Asp Thr  Tyr Asn Gln Glu Lys  Lys Ser Pro
    1190                1195                1200

Glu Glu  Ile Glu Arg Lys Glu  Lys Leu Thr Gln Glu  Asn Val Ala
    1205                1210                1215

Leu Pro  Gln Ala His Thr Met  Ile Gly Thr Lys Asn  Phe Leu Lys
    1220                1225                1230

Asn Leu  Phe Leu Leu Ser Thr  Lys Gln Asn Val Ala  Gly Leu Glu
    1235                1240                1245

Glu Gln  Pro Tyr Thr Pro Ile  Leu Gln Asp Thr Arg  Ser Leu Asn
    1250                1255                1260

Asp Ser  Pro His Ser Glu Gly  Ile His Met Ala Asn  Phe Ser Lys
    1265                1270                1275

Ile Arg  Glu Glu Ala Asn Leu  Glu Gly Leu Gly Asn  Gln Thr Asn
    1280                1285                1290

Gln Met  Val Glu Arg Phe Pro  Ser Thr Thr Arg Met  Ser Ser Asn
    1295                1300                1305

Ala Ser  Gln His Val Ile Thr  Gln Arg Gly Lys Arg  Ser Leu Lys
    1310                1315                1320

Gln Pro  Arg Leu Ser Gln Gly  Glu Ile Lys Phe Glu  Arg Lys Val
    1325                1330                1335
```

```
Ile Ala  Asn Asp Thr Ser Thr  Gln Trp Ser Lys Asn  Met Asn Tyr
    1340                1345                1350

Leu Ala  Gln Gly Thr Leu Thr  Gln Ile Glu Tyr Asn  Glu Lys Glu
    1355                1360                1365

Lys Arg  Ala Ile Thr Gln Ser  Pro Leu Ser Asp Cys  Ser Met Arg
    1370                1375                1380

Asn His  Val Thr Ile Gln Met  Asn Asp Ser Ala Leu  Pro Val Ala
    1385                1390                1395

Lys Glu  Ser Ala Ser Pro Ser  Val Arg His Thr Asp  Leu Thr Lys
    1400                1405                1410

Ile Pro  Ser Gln His Asn Ser  Ser His Leu Pro Ala  Ser Ala Cys
    1415                1420                1425

Asn Tyr  Thr Phe Arg Glu Arg  Thr Ser Gly Val Gln  Glu Gly Ser
    1430                1435                1440

His Phe  Leu Gln Glu Ala Lys  Arg Asn Asn Leu Ser  Leu Ala Phe
    1445                1450                1455

Val Thr  Leu Gly Ile Thr Glu  Gly Gln Gly Lys Phe  Ser Ser Leu
    1460                1465                1470

Gly Lys  Ser Ala Thr Asn Gln  Pro Met Tyr Lys Lys  Leu Glu Asn
    1475                1480                1485

Thr Val  Leu Leu Gln Pro Gly  Leu Ser Glu Thr Ser  Asp Lys Val
    1490                1495                1500

Glu Leu  Leu Ser Gln Val His  Val Asp Gln Glu Asp  Ser Phe Pro
    1505                1510                1515

Thr Lys  Thr Ser Asn Asp Ser  Pro Gly His Leu Asp  Leu Met Gly
    1520                1525                1530

Lys Ile  Phe Leu Gln Lys Thr  Gln Gly Pro Val Lys  Met Asn Lys
    1535                1540                1545
```

```
Thr Asn  Ser Pro Gly Lys Val  Pro Phe Leu Lys Trp  Ala Thr Glu
    1550                1555                1560

Ser Ser  Glu Lys Ile Pro Ser  Lys Leu Leu Gly Val  Leu Ala Trp
    1565                1570                1575

Asp Asn  His Tyr Asp Thr Gln  Ile Pro Ser Glu Glu  Trp Lys Ser
    1580                1585                1590

Gln Lys  Lys Ser Gln Thr Asn  Thr Ala Phe Lys Arg  Lys Asp Thr
    1595                1600                1605

Ile Leu  Pro Leu Gly Pro Cys  Glu Asn Asn Asp Ser  Thr Ala Ala
    1610                1615                1620

Ile Asn  Glu Gly Gln Asp Lys  Pro Gln Arg Glu Ala  Met Trp Ala
    1625                1630                1635

Lys Gln  Gly Glu Pro Gly Arg  Leu Cys Ser Gln Asn  Pro Pro Val
    1640                1645                1650

Ser Lys  His His Gln Arg Glu  Ile Thr Val Thr Thr  Leu Gln Pro
    1655                1660                1665

Glu Glu  Asp Lys Phe Glu Tyr  Asp Asp Thr Phe Ser  Ile Glu Met
    1670                1675                1680

Lys Arg  Glu Asp Phe Asp Ile  Tyr Gly Asp Tyr Glu  Asn Gln Gly
    1685                1690                1695

Leu Arg  Ser Phe Gln Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala
    1700                1705                1710

Val Glu  Arg Leu Trp Asp Tyr  Gly Met Ser Arg Ser  Pro His Ile
    1715                1720                1725

Leu Arg  Asn Arg Ala Gln Ser  Gly Asp Val Gln Gln  Phe Lys Lys
    1730                1735                1740

Val Val  Phe Gln Glu Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu
```

```
    1745                1750                1755

Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr
    1760                1765                1770

Ile Arg  Ala Glu Val Glu Asp  Asn Ile Val Val Thr  Phe Lys Asn
    1775                1780                1785

Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr
    1790                1795                1800

Asp Glu  Asp Glu Gly Gln Gly  Ala Glu Pro Arg Arg  Lys Phe Val
    1805                1810                1815

Asn Pro  Asn Glu Thr Lys Ile  Tyr Phe Trp Lys Val  Gln His His
    1820                1825                1830

Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr
    1835                1840                1845

Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val His Ser  Gly Leu Ile
    1850                1855                1860

Gly Pro  Leu Leu Ile Cys Arg  Ser Asn Thr Leu Asn  Pro Ala His
    1865                1870                1875

Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala Leu Val  Phe Thr Ile
    1880                1885                1890

Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr Glu Asn  Leu Glu Arg
    1895                1900                1905

Asn Cys  Arg Ala Pro Cys Asn  Val Gln Lys Glu Asp  Pro Thr Leu
    1910                1915                1920

Lys Glu  Asn Phe Arg Phe His  Ala Ile Asn Gly Tyr  Val Lys Asp
    1925                1930                1935

Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp Gln Lys  Val Arg Trp
    1940                1945                1950
```

```
Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn Ile His  Ser Ile His
    1955                1960                1965

Phe Ser  Gly His Val Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys
    1970                1975                1980

Met Ala  Val Tyr Asn Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu
    1985                1990                1995

Met Leu  Pro Ser Gln Val Gly  Ile Trp Arg Ile Glu  Cys Leu Ile
    2000                2005                2010

Gly Glu  His Leu Gln Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr
    2015                2020                2025

Ser Lys  Lys Cys Gln Thr Pro  Leu Gly Met Ala Ser  Gly His Ile
    2030                2035                2040

Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala
    2045                2050                2055

Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp
    2060                2065                2070

Ser Thr  Lys Asp Pro Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala
    2075                2080                2085

Pro Met  Ile Ile His Gly Ile  Met Thr Gln Gly Ala  Arg Gln Lys
    2090                2095                2100

Phe Ser  Ser Leu Tyr Val Ser  Gln Phe Ile Ile Met  Tyr Ser Leu
    2105                2110                2115

Asp Gly  Asn Lys Trp His Ser  Tyr Arg Gly Asn Ser  Thr Gly Thr
    2120                2125                2130

Leu Met  Val Phe Phe Gly Asn  Val Asp Ser Ser Gly  Ile Lys His
    2135                2140                2145

Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Gln Tyr Ile  Arg Leu His
    2150                2155                2160
```

```
Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu Arg Met  Glu Leu Leu
    2165                2170                2175


Gly Cys  Asp Phe Asn Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser
    2180                2185                2190


Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala Ser Ser  Tyr Leu Ser
    2195                2200                2205


Ser Met  Leu Ala Thr Trp Ser  Pro Ser Gln Ala Arg  Leu His Leu
    2210                2215                2220


Gln Gly  Arg Thr Asn Ala Trp  Arg Pro Gln Ala Asn  Asn Pro Lys
    2225                2230                2235


Glu Trp  Leu Gln Val Asp Phe  Arg Lys Thr Met Lys  Val Thr Gly
    2240                2245                2250


Ile Thr  Thr Gln Gly Val Lys  Ser Leu Leu Ile Ser  Met Tyr Val
    2255                2260                2265


Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp Gly His  Asn Trp Thr
    2270                2275                2280


Leu Phe  Leu Gln Asn Gly Lys  Val Lys Val Phe Gln  Gly Asn Arg
    2285                2290                2295


Asp Ser  Ser Thr Pro Val Arg  Asn Arg Leu Glu Pro  Pro Leu Val
    2300                2305                2310


Ala Arg  Tyr Val Arg Leu His  Pro Gln Ser Trp Ala  His His Ile
    2315                2320                2325


Ala Leu  Arg Leu Glu Val Leu  Gly Cys Asp Thr Gln  Gln Pro Ala
    2330                2335                2340
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<212> PRT
<213> Sus sp.

<400> 4

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                  10                  15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220
```

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445
```

```
Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
```

```
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro Ser Thr Arg
            740                 745                 750

Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp Ile Glu Lys
        755                 760                 765

Thr Asp Pro Trp Phe Ala His Arg Thr Pro Met Pro Lys Ile Gln Asn
    770                 775                 780

Val Ser Ser Ser Asp Leu Leu Met Leu Leu Arg Gln Ser Pro Thr Pro
785                 790                 795                 800

His Gly Leu Ser Leu Ser Asp Leu Gln Glu Ala Lys Tyr Glu Thr Phe
                805                 810                 815

Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn Ser Leu Ser
            820                 825                 830

Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly Asp Met Val
        835                 840                 845

Phe Thr Pro Glu Ser Gly Leu Gln Leu Arg Leu Asn Glu Lys Leu Gly
    850                 855                 860

Thr Thr Ala Ala Thr Glu Leu Lys Lys Leu Asp Phe Lys Val Ser Ser
865                 870                 875                 880
```

```
Thr Ser Asn Asn Leu Ile Ser Thr Ile Pro Ser Asp Asn Leu Ala Ala
                885                 890                 895

Gly Thr Asp Asn Thr Ser Ser Leu Gly Pro Pro Ser Met Pro Val His
            900                 905                 910

Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly Lys Lys Ser Ser Pro
        915                 920                 925

Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu Asn Asn Asp
    930                 935                 940

Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu Ser Ser Trp
945                 950                 955                 960

Gly Lys Asn Val Ser Ser Thr Glu Ser Gly Arg Leu Phe Lys Gly Lys
                965                 970                 975

Arg Ala His Gly Pro Ala Leu Leu Thr Lys Asp Asn Ala Leu Phe Lys
            980                 985                 990

Val Ser Ile Ser Leu Leu Lys Thr  Asn Lys Thr Ser Asn  Asn Ser Ala
        995                 1000                1005

Thr Asn  Arg Lys Thr His Ile  Asp Gly Pro Ser Leu  Leu Ile Glu
    1010                1015                1020

Asn Ser  Pro Ser Val Trp Gln  Asn Ile Leu Glu Ser  Asp Thr Glu
    1025                1030                1035

Phe Lys  Lys Val Thr Pro Leu  Ile His Asp Arg Met  Leu Met Asp
    1040                1045                1050

Lys Asn  Ala Thr Ala Leu Arg  Leu Asn His Met Ser  Asn Lys Thr
    1055                1060                1065

Thr Ser  Ser Lys Asn Met Glu  Met Val Gln Gln Lys  Lys Glu Gly
    1070                1075                1080

Pro Ile  Pro Pro Asp Ala Gln  Asn Pro Asp Met Ser  Phe Phe Lys
    1085                1090                1095
```

```
Met Leu  Phe Leu Pro Glu Ser  Ala Arg Trp Ile Gln  Arg Thr His
    1100                1105                1110

Gly Lys  Asn Ser Leu Asn Ser  Gly Gln Gly Pro Ser  Pro Lys Gln
    1115                1120                1125

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

Leu Ser  Glu Lys Asn Lys Val  Val Val Gly Lys Gly  Glu Phe Thr
    1145                1150                1155

Lys Asp  Val Gly Leu Lys Glu  Met Val Phe Pro Ser  Ser Arg Asn
    1160                1165                1170

Leu Phe  Leu Thr Asn Leu Asp  Asn Leu His Glu Asn  Asn Thr His
    1175                1180                1185

Asn Gln  Glu Lys Lys Ile Gln  Glu Glu Ile Glu Lys  Lys Glu Thr
    1190                1195                1200

Leu Ile  Gln Glu Asn Val Val  Leu Pro Gln Ile His  Thr Val Thr
    1205                1210                1215

Gly Thr  Lys Asn Phe Met Lys  Asn Leu Phe Leu Leu  Ser Thr Arg
    1220                1225                1230

Gln Asn  Val Glu Gly Ser Tyr  Asp Gly Ala Tyr Ala  Pro Val Leu
    1235                1240                1245

Gln Asp  Phe Arg Ser Leu Asn  Asp Ser Thr Asn Arg  Thr Lys Lys
    1250                1255                1260

His Thr  Ala His Phe Ser Lys  Lys Gly Glu Glu Glu  Asn Leu Glu
    1265                1270                1275

Gly Leu  Gly Asn Gln Thr Lys  Gln Ile Val Glu Lys  Tyr Ala Cys
    1280                1285                1290

Thr Thr  Arg Ile Ser Pro Asn  Thr Ser Gln Gln Asn  Phe Val Thr
    1295                1300                1305
```

```
Gln Arg  Ser Lys Arg Ala Leu  Lys Gln Phe Arg Leu  Pro Leu Glu
    1310                1315                1320

Glu Thr  Glu Leu Glu Lys Arg  Ile Ile Val Asp Asp  Thr Ser Thr
    1325                1330                1335

Gln Trp  Ser Lys Asn Met Lys  His Leu Thr Pro Ser  Thr Leu Thr
    1340                1345                1350

Gln Ile  Asp Tyr Asn Glu Lys  Glu Lys Gly Ala Ile  Thr Gln Ser
    1355                1360                1365

Pro Leu  Ser Asp Cys Leu Thr  Arg Ser His Ser Ile  Pro Gln Ala
    1370                1375                1380

Asn Arg  Ser Pro Leu Pro Ile  Ala Lys Val Ser Ser  Phe Pro Ser
    1385                1390                1395

Ile Arg  Pro Ile Tyr Leu Thr  Arg Val Leu Phe Gln  Asp Asn Ser
    1400                1405                1410

Ser His  Leu Pro Ala Ala Ser  Tyr Arg Lys Lys Asp  Ser Gly Val
    1415                1420                1425

Gln Glu  Ser Ser His Phe Leu  Gln Gly Ala Lys Lys  Asn Asn Leu
    1430                1435                1440

Ser Leu  Ala Ile Leu Thr Leu  Glu Met Thr Gly Asp  Gln Arg Glu
    1445                1450                1455

Val Gly  Ser Leu Gly Thr Ser  Ala Thr Asn Ser Val  Thr Tyr Lys
    1460                1465                1470

Lys Val  Glu Asn Thr Val Leu  Pro Lys Pro Asp Leu  Pro Lys Thr
    1475                1480                1485

Ser Gly  Lys Val Glu Leu Leu  Pro Lys Val His Ile  Tyr Gln Lys
    1490                1495                1500

Asp Leu  Phe Pro Thr Glu Thr  Ser Asn Gly Ser Pro  Gly His Leu
```

```
    1505                1510                1515

Asp Leu  Val Glu Gly Ser Leu  Leu Gln Gly Thr Glu  Gly Ala Ile
    1520                1525                1530

Lys Trp  Asn Glu Ala Asn Arg  Pro Gly Lys Val Pro  Phe Leu Arg
    1535                1540                1545

Val Ala  Thr Glu Ser Ser Ala  Lys Thr Pro Ser Lys  Leu Leu Asp
    1550                1555                1560

Pro Leu  Ala Trp Asp Asn His  Tyr Gly Thr Gln Ile  Pro Lys Glu
    1565                1570                1575

Glu Trp  Lys Ser Gln Glu Lys  Ser Pro Glu Lys Thr  Ala Phe Lys
    1580                1585                1590

Lys Lys  Asp Thr Ile Leu Ser  Leu Asn Ala Cys Glu  Ser Asn His
    1595                1600                1605

Ala Ile  Ala Ala Ile Asn Glu  Gly Gln Asn Lys Pro  Glu Ile Glu
    1610                1615                1620

Val Thr  Trp Ala Lys Gln Gly  Arg Thr Glu Arg Leu  Cys Ser Gln
    1625                1630                1635

Asn Pro  Pro Val Leu Lys Arg  His Gln Arg Glu Ile  Thr Arg Thr
    1640                1645                1650

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1655                1660                1665

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1670                1675                1680

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1685                1690                1695

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1700                1705                1710
```

```
Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1715                1720                1725

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1730                1735                1740

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1745                1750                1755

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1760                1765                1770

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1775                1780                1785

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1790                1795                1800

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1805                1810                1815

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1820                1825                1830

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1835                1840                1845

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1850                1855                1860

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1865                1870                1875

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1880                1885                1890

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1895                1900                1905

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1910                1915                1920
```

```
Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1925                1930                1935

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1940                1945                1950

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1955                1960                1965

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1970                1975                1980

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1985                1990                1995

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    2000                2005                2010

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    2015                2020                2025

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    2030                2035                2040

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    2045                2050                2055

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    2060                2065                2070

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    2075                2080                2085

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    2090                2095                2100

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    2105                2110                2115

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    2120                2125                2130
```

```
Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    2135                2140                2145

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    2150                2155                2160

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    2165                2170                2175

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    2180                2185                2190

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    2195                2200                2205

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    2210                2215                2220

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    2225                2230                2235

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    2240                2245                2250

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    2255                2260                2265

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    2270                2275                2280

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    2285                2290                2295

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    2300                2305                2310

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    2315                2320                2325

Gln Asp  Leu Tyr
```

2330

<210> 5
<211> 2300
<212> PRT
<213> Mus sp.

<400> 5
Ala Ile Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asn Tyr
1 5 10 15

Ile Gln Ser Asp Leu Leu Ser Val Leu His Thr Asp Ser Arg Phe Leu
20 25 30

Pro Arg Met Ser Thr Ser Phe Pro Phe Asn Thr Ser Ile Met Tyr Lys
35 40 45

Lys Thr Val Phe Val Glu Tyr Lys Asp Gln Leu Phe Asn Ile Ala Lys
50 55 60

Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Trp Thr Glu
65 70 75 80

Val His Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro
85 90 95

Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly
100 105 110

Asp Glu Tyr Glu Asp Gln Thr Ser Gln Met Glu Lys Glu Asp Asp Lys
115 120 125

Val Phe Pro Gly Glu Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu
130 135 140

Asn Gly Pro Met Ala Ser Asp Pro Pro Cys Leu Thr Tyr Ser Tyr Met
145 150 155 160

Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala
165 170 175

Leu Leu Val Cys Lys Glu Gly Ser Leu Ser Lys Glu Arg Thr Gln Met
180 185 190

```
Leu Tyr Gln Phe Val Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser
        195                 200                 205

Trp His Ser Glu Thr Asn Asp Ser Tyr Thr Gln Ser Met Asp Ser Ala
    210                 215                 220

Ser Ala Arg Asp Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn
225                 230                 235                 240

Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp
                245                 250                 255

His Val Ile Gly Met Gly Thr Thr Pro Glu Ile His Ser Ile Phe Leu
            260                 265                 270

Glu Gly His Thr Phe Phe Val Arg Asn His Arg Gln Ala Ser Leu Glu
        275                 280                 285

Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Ile Asp Leu
    290                 295                 300

Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Lys His Asp Gly
305                 310                 315                 320

Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Ser Gln Trp
                325                 330                 335

Gln Lys Lys Asn Asn Asn Glu Glu Met Glu Asp Tyr Asp Asp Asp Leu
            340                 345                 350

Tyr Ser Glu Met Asp Met Phe Thr Leu Asp Tyr Asp Ser Ser Pro Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys Tyr Pro Lys Thr Trp Ile His
    370                 375                 380

Tyr Ile Ser Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Ser Val Pro
385                 390                 395                 400

Thr Ser Asp Asn Gly Ser Tyr Lys Ser Gln Tyr Leu Ser Asn Gly Pro
```

```
                405                 410                 415

His Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Ile Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Thr Ile Gln His Glu Ser Gly Leu
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Ser Pro Leu His Ala Arg Arg Leu Pro Arg Gly Ile Lys
                485                 490                 495

His Val Lys Asp Leu Pro Ile His Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Ile Asn Pro Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Met Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Ile Phe Asp Glu Asn Gln Ser Trp Tyr Ile Thr Glu Asn Met Gln
            580                 585                 590

Arg Phe Leu Pro Asn Ala Ala Lys Thr Gln Pro Gln Asp Pro Gly Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Glu Leu Thr Val Cys Leu His Glu Val Ala Tyr Trp His Ile Leu
625                 630                 635                 640

Ser Val Gly Ala Gln Thr Asp Phe Leu Ser Ile Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Val Leu Gly Cys His Asn Ser Asp Phe Arg Lys Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Ser Thr Ser Asp Tyr Tyr Glu
705                 710                 715                 720

Glu Ile Tyr Glu Asp Ile Pro Thr Gln Leu Val Asn Glu Asn Asn Val
                725                 730                 735

Ile Asp Pro Arg Ser Phe Phe Gln Asn Thr Asn His Pro Asn Thr Arg
            740                 745                 750

Lys Lys Lys Phe Lys Asp Ser Thr Ile Pro Lys Asn Asp Met Glu Lys
        755                 760                 765

Ile Glu Pro Gln Phe Glu Glu Ile Ala Glu Met Leu Lys Val Gln Ser
    770                 775                 780

Val Ser Val Ser Asp Met Leu Met Leu Leu Gly Gln Ser His Pro Thr
785                 790                 795                 800

Pro His Gly Leu Phe Leu Ser Asp Gly Gln Glu Ala Ile Tyr Glu Ala
                805                 810                 815

Ile His Asp Asp His Ser Pro Asn Ala Ile Asp Ser Asn Glu Gly Pro
            820                 825                 830

Ser Lys Val Thr Gln Leu Arg Pro Glu Ser His His Ser Glu Lys Ile
        835                 840                 845
```

```
Val Phe Thr Pro Gln Pro Gly Leu Gln Leu Arg Ser Asn Lys Ser Leu
    850                 855                 860

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

Ser Leu Pro Ser Asn Leu Met Thr Thr Thr Ile Leu Ser Asp Asn Leu
                885                 890                 895

Lys Ala Thr Phe Glu Lys Thr Asp Ser Ser Gly Phe Pro Asp Met Pro
            900                 905                 910

Val His Ser Ser Ser Lys Leu Ser Thr Thr Ala Phe Gly Lys Lys Ala
        915                 920                 925

Tyr Ser Leu Val Gly Ser His Val Pro Leu Asn Ala Ser Glu Glu Asn
    930                 935                 940

Ser Asp Ser Asn Ile Leu Asp Ser Thr Leu Met Tyr Ser Gln Glu Ser
945                 950                 955                 960

Leu Pro Arg Asp Asn Ile Leu Ser Ile Glu Asn Asp Arg Leu Leu Arg
                965                 970                 975

Glu Lys Arg Phe His Gly Ile Ala Leu Leu Thr Lys Asp Asn Thr Leu
            980                 985                 990

Phe Lys Asp Asn Val Ser Leu Met  Lys Thr Asn Lys Thr  Tyr Asn His
        995                 1000                1005

Ser Thr  Thr Asn Glu Lys Leu  His Thr Glu Ser Pro  Thr Ser Ile
    1010                1015                1020

Glu Asn  Ser Thr Thr Asp Leu  Gln Asp Ala Ile Leu  Lys Val Asn
    1025                1030                1035

Ser Glu  Ile Gln Glu Val Thr  Ala Leu Ile His Asp  Gly Thr Leu
    1040                1045                1050

Leu Gly  Lys Asn Ser Thr Tyr  Leu Arg Leu Asn His  Met Leu Asn
    1055                1060                1065
```

```
Arg Thr  Thr Ser Thr Lys Asn  Lys Asp Ile Phe His  Arg Lys Asp
    1070                1075                1080

Glu Asp  Pro Ile Pro Gln Asp  Glu Glu Asn Thr Ile  Met Pro Phe
    1085                1090                1095

Ser Lys  Met Leu Phe Leu Ser  Glu Ser Ser Asn Trp  Phe Lys Lys
    1100                1105                1110

Thr Asn  Gly Asn Asn Ser Leu  Asn Ser Glu Gln Glu  His Ser Pro
    1115                1120                1125

Lys Gln  Leu Val Tyr Leu Met  Phe Lys Lys Tyr Val  Lys Asn Gln
    1130                1135                1140

Ser Phe  Leu Ser Glu Lys Asn  Lys Val Thr Val Glu  Gln Asp Gly
    1145                1150                1155

Phe Thr  Lys Asn Ile Gly Leu  Lys Asp Met Ala Phe  Pro His Asn
    1160                1165                1170

Met Ser  Ile Phe Leu Thr Thr  Leu Ser Asn Val His  Glu Asn Gly
    1175                1180                1185

Arg His  Asn Gln Glu Lys Asn  Ile Gln Glu Glu Ile  Glu Lys Glu
    1190                1195                1200

Ala Leu  Ile Glu Glu Lys Val  Val Leu Pro Gln Val  His Glu Ala
    1205                1210                1215

Thr Gly  Ser Lys Asn Phe Leu  Lys Asp Ile Leu Ile  Leu Gly Thr
    1220                1225                1230

Arg Gln  Asn Ile Ser Leu Tyr  Glu Val His Val Pro  Val Leu Gln
    1235                1240                1245

Asn Ile  Thr Ser Ile Asn Asn  Ser Thr Asn Thr Val  Gln Ile His
    1250                1255                1260

Met Glu  His Phe Phe Lys Arg  Arg Lys Asp Lys Glu  Thr Asn Ser
```

```
    1265                1270                1275

Glu Gly  Leu Val Asn Lys Thr  Arg Glu Met Val Lys  Asn Tyr Pro
    1280                1285                1290

Ser Gln  Lys Asn Ile Thr Thr  Gln Arg Ser Lys Arg  Ala Leu Gly
    1295                1300                1305

Gln Phe  Arg Leu Ser Thr Gln  Trp Leu Lys Thr Ile  Asn Cys Ser
    1310                1315                1320

Thr Gln  Cys Ile Ile Lys Gln  Ile Asp His Ser Lys  Glu Met Lys
    1325                1330                1335

Lys Phe  Ile Thr Lys Ser Ser  Leu Ser Asp Ser Ser  Val Ile Lys
    1340                1345                1350

Ser Thr  Thr Gln Thr Asn Ser  Ser Asp Ser His Ile  Val Lys Thr
    1355                1360                1365

Ser Ala  Phe Pro Pro Ile Asp  Leu Lys Arg Ser Pro  Phe Gln Asn
    1370                1375                1380

Lys Phe  Ser His Val Gln Ala  Ser Ser Tyr Ile Tyr  Asp Phe Lys
    1385                1390                1395

Thr Lys  Ser Ser Arg Ile Gln  Glu Ser Asn Asn Phe  Leu Lys Glu
    1400                1405                1410

Thr Lys  Ile Asn Asn Pro Ser  Leu Ala Ile Leu Pro  Trp Asn Met
    1415                1420                1425

Phe Ile  Asp Gln Gly Lys Phe  Thr Ser Pro Gly Lys  Ser Asn Thr
    1430                1435                1440

Asn Ser  Val Thr Tyr Lys Lys  Arg Glu Asn Ile Ile  Phe Leu Lys
    1445                1450                1455

Pro Thr  Leu Pro Glu Glu Ser  Gly Lys Ile Glu Leu  Leu Pro Gln
    1460                1465                1470
```

```
Val Ser  Ile Gln Glu Glu Glu  Ile Leu Pro Thr Glu  Thr Ser His
    1475                 1480                 1485

Gly Ser  Pro Gly His Leu Asn  Leu Met Lys Glu Val  Phe Leu Gln
    1490                 1495                 1500

Lys Ile  Gln Gly Pro Thr Lys  Trp Asn Lys Ala Lys  Arg His Gly
    1505                 1510                 1515

Glu Ser  Ile Lys Gly Lys Thr  Glu Ser Ser Lys Asn  Thr Arg Ser
    1520                 1525                 1530

Lys Leu  Leu Asn His His Ala  Trp Asp Tyr His Tyr  Ala Ala Gln
    1535                 1540                 1545

Ile Pro  Lys Asp Met Trp Lys  Ser Lys Glu Lys Ser  Pro Glu Ile
    1550                 1555                 1560

Ile Ser  Ile Lys Gln Glu Asp  Thr Ile Leu Ser Leu  Arg Pro His
    1565                 1570                 1575

Gly Asn  Ser His Ser Ile Gly  Ala Asn Glu Lys Gln  Asn Trp Pro
    1580                 1585                 1590

Gln Arg  Glu Thr Thr Trp Val  Lys Gln Gly Gln Thr  Gln Arg Thr
    1595                 1600                 1605

Cys Ser  Gln Ile Pro Pro Val  Leu Lys Arg His Gln  Arg Glu Leu
    1610                 1615                 1620

Ser Ala  Phe Gln Ser Glu Gln  Glu Ala Thr Asp Tyr  Asp Asp Ala
    1625                 1630                 1635

Ile Thr  Ile Glu Thr Ile Glu  Asp Phe Asp Ile Tyr  Ser Glu Asp
    1640                 1645                 1650

Ile Lys  Gln Gly Pro Arg Ser  Phe Gln Gln Lys Thr  Arg His Tyr
    1655                 1660                 1665

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Thr
    1670                 1675                 1680
```

```
Ser His  Val Leu Arg Asn Arg  Tyr Gln Ser Asp Asn  Val Pro Gln
    1685                1690                1695

Phe Lys  Lys Val Val Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Ser
    1700                1705                1710

Gln Pro  Leu Tyr Arg Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu
    1715                1720                1725

Gly Pro  Tyr Ile Arg Ala Glu  Val Glu Asp Asn Ile  Met Val Thr
    1730                1735                1740

Phe Lys  Asn Gln Ala Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu
    1745                1750                1755

Ile Ser  Tyr Lys Glu Asp Gln  Arg Gly Glu Glu Pro  Arg Arg Asn
    1760                1765                1770

Phe Val  Lys Pro Asn Glu Thr  Lys Ile Tyr Phe Trp  Lys Val Gln
    1775                1780                1785

His His  Met Ala Pro Thr Glu  Asp Glu Phe Asp Cys  Lys Ala Trp
    1790                1795                1800

Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Arg Asp Met  His Ser Gly
    1805                1810                1815

Leu Ile  Gly Pro Leu Leu Ile  Cys His Ala Asn Thr  Leu Asn Pro
    1820                1825                1830

Ala His  Gly Arg Gln Val Ser  Val Gln Glu Phe Ala  Leu Leu Phe
    1835                1840                1845

Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr Phe Thr  Glu Asn Val
    1850                1855                1860

Lys Arg  Asn Cys Lys Thr Pro  Cys Asn Phe Gln Met  Glu Asp Pro
    1865                1870                1875

Thr Leu  Lys Glu Asn Tyr Arg  Phe His Ala Ile Asn  Gly Tyr Val
    1880                1885                1890
```

```
Met Asp  Thr Leu Pro Gly Leu  Val Met Ala Gln Asp  Gln Arg Ile
    1895                1900                1905

Arg Trp  Tyr Leu Leu Ser Met  Gly Asn Asn Glu Asn  Ile Gln Ser
    1910                1915                1920

Ile His  Phe Ser Gly His Val  Phe Thr Val Arg Lys  Lys Glu Glu
    1925                1930                1935

Tyr Lys  Met Ala Val Tyr Asn  Leu Tyr Pro Gly Val  Phe Glu Thr
    1940                1945                1950

Leu Glu  Met Ile Pro Ser Arg  Ala Gly Ile Trp Arg  Val Glu Cys
    1955                1960                1965

Leu Ile  Gly Glu His Leu Gln  Ala Gly Met Ser Thr  Leu Phe Leu
    1970                1975                1980

Val Tyr  Ser Lys Gln Cys Gln  Ile Pro Leu Gly Met  Ala Ser Gly
    1985                1990                1995

Ser Ile  Arg Asp Phe Gln Ile  Thr Ala Ser Gly His  Tyr Gly Gln
    2000                2005                2010

Trp Ala  Pro Asn Leu Ala Arg  Leu His Tyr Ser Gly  Ser Ile Asn
    2015                2020                2025

Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp Ile Lys  Val Asp Leu
    2030                2035                2040

Leu Ala  Pro Met Ile Val His  Gly Ile Lys Thr Gln  Gly Ala Arg
    2045                2050                2055

Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln Phe Ile  Ile Met Tyr
    2060                2065                2070

Ser Leu  Asp Gly Lys Lys Trp  Leu Ser Tyr Gln Gly  Asn Ser Thr
    2075                2080                2085

Gly Thr  Leu Met Val Phe Phe  Gly Asn Val Asp Ser  Ser Gly Ile
```

```
    2090                2095                2100

Lys His  Asn Ser Phe Asn Pro  Pro Ile Ile Ala Arg  Tyr Ile Arg
    2105                2110                2115

Leu His  Pro Thr His Ser Ser  Ile Arg Ser Thr Leu  Arg Met Glu
    2120                2125                2130

Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser Ile Pro  Leu Gly Met
    2135                2140                2145

Glu Ser  Lys Val Ile Ser Asp  Thr Gln Ile Thr Ala  Ser Ser Tyr
    2150                2155                2160

Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro Ser Gln  Ala Arg Leu
    2165                2170                2175

His Leu  Gln Gly Arg Thr Asn  Ala Trp Arg Pro Gln  Val Asn Asp
    2180                2185                2190

Pro Lys  Gln Trp Leu Gln Val  Asp Leu Gln Lys Thr  Met Lys Val
    2195                2200                2205

Thr Gly  Ile Ile Thr Gln Gly  Val Lys Ser Leu Phe  Thr Ser Met
    2210                2215                2220

Phe Val  Lys Glu Phe Leu Ile  Ser Ser Ser Gln Asp  Gly His His
    2225                2230                2235

Trp Thr  Gln Ile Leu Tyr Asn  Gly Lys Val Lys Val  Phe Gln Gly
    2240                2245                2250

Asn Gln  Asp Ser Ser Thr Pro  Met Met Asn Ser Leu  Asp Pro Pro
    2255                2260                2265

Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro Gln Ile  Trp Glu His
    2270                2275                2280

Gln Ile  Ala Leu Arg Leu Glu  Ile Leu Gly Cys Glu  Ala Gln Gln
    2285                2290                2295
```

Gln Tyr
2300

<210> 6
<211> 1457
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 6
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1 5 10 15

Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
20 25 30

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

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile
65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
130 135 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser

```
                165                 170                 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
            180                 185                 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
        195                 200                 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
    210                 215                 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225                 230                 235                 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
                245                 250                 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
            260                 265                 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
        275                 280                 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
    290                 295                 300

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

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
                325                 330                 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
            340                 345                 350

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

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
    370                 375                 380
```

```
Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385                 390                 395                 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
                405                 410                 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
            420                 425                 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
        435                 440                 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
    450                 455                 460

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465                 470                 475                 480

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
                485                 490                 495

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
            500                 505                 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
        515                 520                 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
    530                 535                 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545                 550                 555                 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
                565                 570                 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
            580                 585                 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
        595                 600                 605
```

```
Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
    610                 615                 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625                 630                 635                 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
                645                 650                 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
            660                 665                 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
        675                 680                 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
    690                 695                 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705                 710                 715                 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
                725                 730                 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
            740                 745                 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu
        755                 760                 765

Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln
    770                 775                 780

Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu
785                 790                 795                 800

Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe
                805                 810                 815

Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
            820                 825                 830
```

```
Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln
        835                 840                 845

Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr
    850                 855                 860

Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His
865                 870                 875                 880

Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile
                885                 890                 895

Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser
            900                 905                 910

Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg
        915                 920                 925

Lys Asn Phe Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val
    930                 935                 940

Gln His His Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp
945                 950                 955                 960

Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu
                965                 970                 975

Ile Gly Pro Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His
            980                 985                 990

Gly Arg Gln Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
        995                 1000                1005

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    1010                1015                1020

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    1025                1030                1035

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
```

```
    1040                1045                1050

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    1055                1060                1065

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    1070                1075                1080

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    1085                1090                1095

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
    1100                1105                1110

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    1115                1120                1125

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
    1130                1135                1140

Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
    1145                1150                1155

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    1160                1165                1170

Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    1175                1180                1185

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    1190                1195                1200

Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    1205                1210                1215

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    1220                1225                1230

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    1235                1240                1245
```

```
Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    1250                1255                1260

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    1265                1270                1275

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    1280                1285                1290

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    1295                1300                1305

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    1310                1315                1320

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    1325                1330                1335

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    1340                1345                1350

Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    1355                1360                1365

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    1370                1375                1380

Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    1385                1390                1395

Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
    1400                1405                1410

Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    1415                1420                1425

Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
    1430                1435                1440

Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr
    1445                1450                1455
```

<210> 7
<211> 1438
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 7
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

```
Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
```

```
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                 1060                 1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                 1075                 1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                 1090                 1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                 1105                 1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                 1120                 1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                 1135                 1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                 1150                 1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                 1165                 1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                 1180                 1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                 1195                 1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                 1210                 1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                 1225                 1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                 1255                 1260
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1430                1435
```

<210> 8
<211> 1438
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 8
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
```

```
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Gly Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860
```

```
Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050


Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065


Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080
```

```
Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290
```

```
Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305


Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320


Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335


Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350


Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365


Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380


Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1430                1435


<210> 9
<211> 1391
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 9
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                  10                  15
```

```
Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
```

```
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Gln Ser Pro Arg Ser Phe Gln Lys
            740                 745                 750

Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr
        755                 760                 765

Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly
    770                 775                 780

Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly
785                 790                 795                 800

Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly
                805                 810                 815

Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val
            820                 825                 830

Thr Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu
        835                 840                 845

Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn
    850                 855                 860

Phe Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His
865                 870                 875                 880

His Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr
                885                 890                 895
```

```
Phe Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly
            900                 905                 910

Pro Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg
        915                 920                 925

Gln Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu
    930                 935                 940

Thr Lys Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Ala
945                 950                 955                 960

Pro Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg
                965                 970                 975

Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val
            980                 985                 990

Met Ala Gln Asp Gln Arg Ile Arg  Trp Tyr Leu Leu Ser  Met Gly Ser
        995                 1000                1005

Asn Glu  Asn Ile His Ser Ile  His Phe Ser Gly His  Val Phe Thr
    1010                1015                1020

Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala Leu Tyr  Asn Leu Tyr
    1025                1030                1035

Pro Gly  Val Phe Glu Thr Val  Glu Met Leu Pro Ser  Lys Ala Gly
    1040                1045                1050

Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu His Leu  His Ala Gly
    1055                1060                1065

Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn Lys Cys  Gln Thr Pro
    1070                1075                1080

Leu Gly  Met Ala Ser Gly His  Ile Arg Asp Phe Gln  Ile Thr Ala
    1085                1090                1095

Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys Leu Ala  Arg Leu His
    1100                1105                1110
```

```
Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr Lys Glu  Pro Phe Ser
    1115                1120                1125

Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met Ile Ile  His Gly Ile
    1130                1135                1140

Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser Ser Leu  Tyr Ile Ser
    1145                1150                1155

Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly Lys Lys  Trp Gln Thr
    1160                1165                1170

Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met Val Phe  Phe Gly Asn
    1175                1180                1185

Val Asp  Ser Ser Gly Ile Lys  His Asn Ile Phe Asn  Pro Pro Ile
    1190                1195                1200

Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr His Tyr  Ser Ile Arg
    1205                1210                1215

Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys Asp Leu  Asn Ser Cys
    1220                1225                1230

Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala Ile Ser  Asp Ala Gln
    1235                1240                1245

Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met Phe Ala  Thr Trp Ser
    1250                1255                1260

Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly Arg Ser  Asn Ala Trp
    1265                1270                1275

Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp Leu Gln  Val Asp Phe
    1280                1285                1290

Gln Lys  Thr Met Lys Val Thr  Gly Val Thr Thr Gln  Gly Val Lys
    1295                1300                1305

Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu Phe Leu  Ile Ser Ser
```

```
    1310                1315                1320

Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe Phe Gln  Asn Gly Lys
    1325                1330                1335

Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser Phe Thr  Pro Val Val
    1340                1345                1350

Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg Tyr Leu  Arg Ile His
    1355                1360                1365

Pro Gln  Ser Trp Val His Gln  Ile Ala Leu Arg Met  Glu Val Leu
    1370                1375                1380

Gly Cys  Glu Ala Gln Asp Leu  Tyr
    1385                1390
```

<210> 10
<211> 1360
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 10

```
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                   10                  15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95
```

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
```

```
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525
```

```
Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Gln Ser Pro Arg Ser Phe Gln
705                 710                 715                 720

Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp
                725                 730                 735

Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser
            740                 745                 750
```

```
Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp
        755                 760                 765

Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu
    770                 775                 780

Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met
785                 790                 795                 800

Val Thr Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser
                805                 810                 815

Leu Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys
            820                 825                 830

Asn Phe Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln
        835                 840                 845

His His Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala
    850                 855                 860

Tyr Phe Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile
865                 870                 875                 880

Gly Pro Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly
                885                 890                 895

Arg Gln Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp
            900                 905                 910

Glu Thr Lys Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg
        915                 920                 925

Ala Pro Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr
    930                 935                 940

Arg Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu
945                 950                 955                 960

Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly
                965                 970                 975
```

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

Val Arg Lys Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
        995                 1000                1005

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1010                1015                1020

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1025                1030                1035

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1040                1045                1050

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1055                1060                1065

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1070                1075                1080

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1085                1090                1095

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1100                1105                1110

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1115                1120                1125

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1130                1135                1140

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1145                1150                1155

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1160                1165                1170

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
```

1175 1180 1185

Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn Ser Cys Ser
1190 1195 1200

Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp Ala Gln Ile
1205 1210 1215

Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr Trp Ser Pro
1220 1225 1230

Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp Arg
1235 1240 1245

Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val Asp Phe Gln
1250 1255 1260

Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser
1265 1270 1275

Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser
1280 1285 1290

Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val
1295 1300 1305

Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn
1310 1315 1320

Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro
1325 1330 1335

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
1340 1345 1350

Cys Glu Ala Gln Asp Leu Tyr
1355 1360

<210> 11
<211> 1436
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 11
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp

```
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415
```

```
Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
```

```
Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro Ser Thr Arg
            740                 745                 750

Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp Ile Glu Lys
        755                 760                 765

Thr Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr
    770                 775                 780

Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg
785                 790                 795                 800

His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser
                805                 810                 815

Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro
            820                 825                 830

Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr
        835                 840                 845

Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly
    850                 855                 860
```

```
Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg
865                 870                 875                 880


Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr
                885                 890                 895


Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys
            900                 905                 910


Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala
        915                 920                 925


Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp
    930                 935                 940


Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu
945                 950                 955                 960


Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr
                965                 970                 975


Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser
            980                 985                 990


Trp Tyr Phe Thr Glu Asn Met Glu  Arg Asn Cys Arg Ala  Pro Cys Asn
        995                 1000                1005


Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu Asn Tyr  Arg Phe His
    1010                1015                1020


Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu Pro Gly  Leu Val Met
    1025                1030                1035


Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu Leu Ser  Met Gly Ser
    1040                1045                1050


Asn Glu  Asn Ile His Ser Ile  His Phe Ser Gly His  Val Phe Thr
    1055                1060                1065


Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala Leu Tyr  Asn Leu Tyr
```

```
    1070                1075                1080

Pro Gly  Val Phe Glu Thr Val  Glu Met Leu Pro Ser  Lys Ala Gly
    1085                1090                1095

Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu His Leu  His Ala Gly
    1100                1105                1110

Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn Lys Cys  Gln Thr Pro
    1115                1120                1125

Leu Gly  Met Ala Ser Gly His  Ile Arg Asp Phe Gln  Ile Thr Ala
    1130                1135                1140

Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys Leu Ala  Arg Leu His
    1145                1150                1155

Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr Lys Glu  Pro Phe Ser
    1160                1165                1170

Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met Ile Ile  His Gly Ile
    1175                1180                1185

Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser Ser Leu  Tyr Ile Ser
    1190                1195                1200

Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly Lys Lys  Trp Gln Thr
    1205                1210                1215

Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met Val Phe  Phe Gly Asn
    1220                1225                1230

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

Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr His Tyr  Ser Ile Arg
    1250                1255                1260

Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys Asp Leu  Asn Ser Cys
    1265                1270                1275
```

```
Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala Ile Ser  Asp Ala Gln
    1280                1285                1290

Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met Phe Ala  Thr Trp Ser
    1295                1300                1305

Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly Arg Ser  Asn Ala Trp
    1310                1315                1320

Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp Leu Gln  Val Asp Phe
    1325                1330                1335

Gln Lys  Thr Met Lys Val Thr  Gly Val Thr Thr Gln  Gly Val Lys
    1340                1345                1350

Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu Phe Leu  Ile Ser Ser
    1355                1360                1365

Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe Phe Gln  Asn Gly Lys
    1370                1375                1380

Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser Phe Thr  Pro Val Val
    1385                1390                1395

Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg Tyr Leu  Arg Ile His
    1400                1405                1410

Pro Gln  Ser Trp Val His Gln  Ile Ala Leu Arg Met  Glu Val Leu
    1415                1420                1425

Gly Cys  Glu Ala Gln Asp Leu  Tyr
    1430                1435
```

<210> 12
<211> 1390
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 12
```
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
```

```
1               5                   10                  15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220
```

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445
```

```
Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Ser Pro Arg Ser Phe Gln Lys Lys
            740                 745                 750

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
        755                 760                 765

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
    770                 775                 780

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
785                 790                 795                 800

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
                805                 810                 815

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
            820                 825                 830

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
        835                 840                 845

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
    850                 855                 860

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
865                 870                 875                 880

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
```

```
               885                 890                 895

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
            900                 905                 910

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
        915                 920                 925

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
    930                 935                 940

Lys Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Ala Pro
945                 950                 955                 960

Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe
               965                 970                 975

His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met
            980                 985                 990

Ala Gln Asp Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
        995                 1000                1005

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1010                1015                1020

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1025                1030                1035

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1040                1045                1050

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1055                1060                1065

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1070                1075                1080

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1085                1090                1095
```

```
Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1100                1105                1110

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1115                1120                1125

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1130                1135                1140

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1145                1150                1155

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1160                1165                1170

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1175                1180                1185

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1190                1195                1200

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1205                1210                1215

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1220                1225                1230

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1235                1240                1245

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1250                1255                1260

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1265                1270                1275

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1280                1285                1290

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1295                1300                1305
```

```
Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1310                1315                1320


Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1325                1330                1335


Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1340                1345                1350


Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1355                1360                1365


Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1370                1375                1380


Cys Glu  Ala Gln Asp Leu Tyr
    1385                1390
```

<210> 13
<211> 1457
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 13

```
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1               5                  10                  15


Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
            20                  25                  30


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


Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
    50                  55                  60


Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65                  70                  75                  80
```

```
Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
                85                  90                  95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
            100                 105                 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
        115                 120                 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
    130                 135                 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145                 150                 155                 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
                165                 170                 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
            180                 185                 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
        195                 200                 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
    210                 215                 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225                 230                 235                 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
                245                 250                 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
            260                 265                 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
        275                 280                 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
    290                 295                 300
```

```
Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met
305                 310                 315                 320

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
                325                 330                 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
            340                 345                 350

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

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
    370                 375                 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385                 390                 395                 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
                405                 410                 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
            420                 425                 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
        435                 440                 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
    450                 455                 460

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465                 470                 475                 480

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
                485                 490                 495

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
            500                 505                 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
        515                 520                 525
```

```
Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
    530                 535                 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545                 550                 555                 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
                565                 570                 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
            580                 585                 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
        595                 600                 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
    610                 615                 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625                 630                 635                 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
                645                 650                 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
            660                 665                 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
        675                 680                 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
    690                 695                 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705                 710                 715                 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
                725                 730                 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
```

```
            740                 745                 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu
        755                 760                 765

Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln
    770                 775                 780

Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu
785                 790                 795                 800

Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe
                805                 810                 815

Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
            820                 825                 830

Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln
        835                 840                 845

Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr
    850                 855                 860

Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His
865                 870                 875                 880

Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile
                885                 890                 895

Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser
            900                 905                 910

Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg
        915                 920                 925

Lys Asn Phe Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val
    930                 935                 940

Gln His His Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp
945                 950                 955                 960
```

```
Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu
               965                 970                 975

Ile Gly Pro Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His
           980                 985                 990

Gly Arg Gln Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
        995                 1000                1005

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    1010                1015                1020

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    1025                1030                1035

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    1040                1045                1050

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    1055                1060                1065

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    1070                1075                1080

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    1085                1090                1095

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
    1100                1105                1110

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    1115                1120                1125

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
    1130                1135                1140

Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
    1145                1150                1155

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    1160                1165                1170
```

```
Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    1175                1180                1185

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    1190                1195                1200

Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    1205                1210                1215

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    1220                1225                1230

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    1235                1240                1245

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    1250                1255                1260

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    1265                1270                1275

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    1280                1285                1290

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    1295                1300                1305

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    1310                1315                1320

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    1325                1330                1335

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    1340                1345                1350

Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    1355                1360                1365

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    1370                1375                1380
```

Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu
1385 1390 1395

Phe Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp
1400 1405 1410

Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr
1415 1420 1425

Arg Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala
1430 1435 1440

Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr
1445 1450 1455

<210> 14
<211> 1438
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 14
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
```

```
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750
```

```
Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975
```

```
Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
```

```
    1385                1390                1395


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1430                1435


<210> 15
<211> 1438
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 15
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                   10                  15


Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30


Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45


Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60


Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80


Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95


Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110


Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125
```

```
Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
```

```
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780
```

```
Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800


Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815


Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830


Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845


Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860


Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005
```

```
Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
```

```
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410
```

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1415 1420 1425

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr
1430 1435

<210> 16
<211> 1441
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 16
Ala Thr Arg Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
1 5 10 15

Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
20 25 30

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
35 40 45

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
50 55 60

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
65 70 75 80

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
85 90 95

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
100 105 110

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
115 120 125

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
130 135 140

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser

```
145                 150                 155                 160

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
                165                 170                 175

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
            180                 185                 190

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
        195                 200                 205

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
    210                 215                 220

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
225                 230                 235                 240

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
                245                 250                 255

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
            260                 265                 270

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
        275                 280                 285

Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met
    290                 295                 300

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
305                 310                 315                 320

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
                325                 330                 335

Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
            340                 345                 350

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
        355                 360                 365
```

```
Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
    370                 375                 380

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
385                 390                 395                 400

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
                405                 410                 415

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
            420                 425                 430

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
        435                 440                 445

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
    450                 455                 460

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
465                 470                 475                 480

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
                485                 490                 495

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
            500                 505                 510

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
        515                 520                 525

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
    530                 535                 540

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
545                 550                 555                 560

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
                565                 570                 575

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
            580                 585                 590
```

```
Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
        595                 600                 605

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
    610                 615                 620

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
625                 630                 635                 640

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
                645                 650                 655

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
            660                 665                 670

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
        675                 680                 685

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
    690                 695                 700

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
705                 710                 715                 720

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
                725                 730                 735

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu
            740                 745                 750

Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln
        755                 760                 765

Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu
    770                 775                 780

Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe
785                 790                 795                 800

Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
                805                 810                 815
```

```
Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln
            820                 825                 830

Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr
        835                 840                 845

Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His
    850                 855                 860

Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile
865                 870                 875                 880

Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser
                885                 890                 895

Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg
            900                 905                 910

Lys Asn Phe Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val
        915                 920                 925

Gln His His Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp
    930                 935                 940

Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu
945                 950                 955                 960

Ile Gly Pro Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His
                965                 970                 975

Gly Arg Gln Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe
            980                 985                 990

Asp Glu Thr Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
        995                 1000                1005

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1010                1015                1020

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
```

```
    1025                1030                1035

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1040                1045                1050

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1055                1060                1065

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1070                1075                1080

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1085                1090                1095

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1100                1105                1110

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1115                1120                1125

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1130                1135                1140

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1145                1150                1155

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1160                1165                1170

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1175                1180                1185

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1190                1195                1200

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1205                1210                1215

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1220                1225                1230
```

```
Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1235                1240                1245

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1250                1255                1260

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1265                1270                1275

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1280                1285                1290

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1295                1300                1305

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1310                1315                1320

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1325                1330                1335

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1340                1345                1350

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1355                1360                1365

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1370                1375                1380

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1385                1390                1395

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1400                1405                1410

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1415                1420                1425

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr
    1430                1435                1440
```

<210> 17
<211> 1438
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 17
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

```
Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Phe Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
```

```
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1430                1435
```

<210> 18
<211> 1438
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 18
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
```

```
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Phe Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860
```

```
Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050


Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065


Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080
```

```
Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290
```

```
Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305


Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320


Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335


Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350


Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365


Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380


Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1430                1435


<210> 19
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 19
Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
1               5                   10
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<210> 20
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 20
Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
1 5 10

<210> 21
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 21
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
1 5 10

<210> 22
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 22
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
1 5 10

<210> 23
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 23
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
1 5 10

<210> 24
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 24
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
1 5 10

<210> 25
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 25
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
1 5 10

<210> 26
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 26
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
1 5 10

<210> 27
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 27
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro

1 5 10

<210> 28
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 28
Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
1 5 10

<210> 29
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 29
Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
1 5 10

<210> 30
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 30
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
1 5 10

<210> 31
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 31

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
1   5   10

<210> 32
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 32
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
1   5   10

<210> 33
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 33
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
1   5   10

<210> 34
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 34
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
1   5   10

<210> 35
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 35
Gly Glu Pro Ala Gly Ser Pro Thr Ser Thr Ser Glu
1   5   10

<210> 36
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 36
Gly Thr Gly Glu Pro Ser Ser Thr Pro Ala Ser Glu
1   5   10

<210> 37
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 37
Gly Ser Gly Pro Ser Thr Glu Ser Ala Pro Thr Glu
1   5   10

<210> 38
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 38
Gly Ser Glu Thr Pro Ser Gly Pro Ser Glu Thr Ala
1   5   10

<210> 39
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 39
Gly Pro Ser Glu Thr Ser Thr Ser Glu Pro Gly Ala
1   5   10

<210> 40
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 40
Gly Ser Pro Ser Glu Pro Thr Glu Gly Thr Ser Ala
1   5   10

<210> 41
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 41
Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
1   5   10

<210> 42
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 42
Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
1   5   10

<210> 43
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

peptide

<400> 43
Gly Thr Ser Glu Pro Ser Thr Ser Glu Pro Gly Ala
1 5 10

<210> 44
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 44
Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala
1 5 10

<210> 45
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 45
Gly Ser Thr Ala Gly Ser Glu Thr Ser Thr Glu Ala
1 5 10

<210> 46
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 46
Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala
1 5 10

<210> 47
<211> 12
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 47
Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala
1 5 10

<210> 48
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 48
Gly Thr Ser Thr Glu Ala Ser Glu Gly Ser Ala Ser
1 5 10

<210> 49
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 49
Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
1 5 10 15

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
20 25 30

Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser
35 40

<210> 50
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 50
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro

1 5 10 15

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
20 25 30

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
35 40

<210> 51
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 51
Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
1 5 10 15

Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
20 25 30

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40

<210> 52
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 52
Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
1 5 10 15

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
20 25 30

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
35 40

<210> 53
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 53
Gly Ala Pro Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
1 5 10 15

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
20 25 30

Ala Thr Gly Ser Pro Gly Pro Ser Gly Pro
35 40

<210> 54
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 54
Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
1 5 10 15

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
20 25 30

Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
35 40

<210> 55
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 55
Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr

1 5 10 15

Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
20 25 30

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
35 40

<210> 56
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 56
Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
1 5 10 15

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
20 25 30

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
35 40

<210> 57
<211> 48
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 57
Met Ala Glu Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Pro
1 5 10 15

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
20 25 30

Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
35 40 45

<210> 58
<211> 48
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 58
Met Ala Glu Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser
1 5 10 15

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
20 25 30

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
35 40 45

<210> 59
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 59
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
50 55 60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
65 70 75 80

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
100 105 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
115 120 125

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

<210> 60
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 60
Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
1 5 10 15

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
20 25 30

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
35 40 45

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
50 55 60

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
65 70 75 80

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
85 90 95

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly
100 105 110

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
115 120 125

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
130 135 140

<210> 61
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 61
Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
1 5 10 15

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
20 25 30

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
35 40 45

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
50 55 60

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
65 70 75 80

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
85 90 95

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
100 105 110

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
115 120 125

Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
130 135 140

<210> 62
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 62
Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
1 5 10 15

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
20 25 30

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
35 40 45

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
50 55 60

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
65 70 75 80

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
85 90 95

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
100 105 110

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
115 120 125

Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
130 135 140

<210> 63
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 63
Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
1 5 10 15

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Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
            20                  25                  30

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        35                  40                  45

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    50                  55                  60

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
65                  70                  75                  80

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                85                  90                  95

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
            100                 105                 110

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
        115                 120                 125

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
    130                 135                 140


<210> 64
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 64
Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
1               5                   10                  15

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
            20                  25                  30

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        35                  40                  45

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
```

```
    50                  55                  60

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
65                  70                  75                  80

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                85                  90                  95

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
            100                 105                 110

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
        115                 120                 125

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
    130                 135                 140


<210> 65
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 65
Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
1               5                   10                  15

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            20                  25                  30

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        35                  40                  45

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
    50                  55                  60

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
65                  70                  75                  80

Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
                85                  90                  95
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Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly
100 105 110

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
115 120 125

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
130 135 140

<210> 66
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 66
Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
1 5 10 15

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
20 25 30

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
35 40 45

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
50 55 60

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
65 70 75 80

Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
85 90 95

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly
100 105 110

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
115 120 125

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
    130   135   140

<210> 67
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 67
Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
1   5   10   15

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            20   25   30

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        35   40   45

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
    50   55   60

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
65   70   75   80

Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                85   90   95

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
            100   105   110

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
        115   120   125

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
    130   135   140

<210> 68
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 68
Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
1 5 10 15

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
20 25 30

Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
35 40 45

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
50 55 60

Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
65 70 75 80

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
85 90 95

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
100 105 110

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
115 120 125

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
130 135 140

<210> 69
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 69
Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
            20   25   30

Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
        35   40   45

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
    50   55   60

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
65   70   75   80

Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                85   90   95

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
            100   105   110

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
        115   120   125

Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
    130   135   140

<210> 70
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 70
Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
1   5   10   15

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            20   25   30

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        35   40   45

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
50 55 60

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
65 70 75 80

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
85 90 95

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
100 105 110

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
115 120 125

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
130 135 140

<210> 71
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 71
Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
1 5 10 15

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
20 25 30

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
35 40 45

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
50 55 60

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
65 70 75 80

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser

85 90 95

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser
100 105 110

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
115 120 125

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
130 135 140

<210> 72
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 72
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
35 40 45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
50 55 60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
85 90 95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
100 105 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
115 120 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
130 135 140

<210> 73
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 73
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
35 40 45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
50 55 60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
65 70 75 80

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
85 90 95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
100 105 110

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
115 120 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
130 135 140

<210> 74
<211> 144
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 74
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
1 5 10 15

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
35 40 45

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
50 55 60

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
100 105 110

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
115 120 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
130 135 140

<210> 75
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 75
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            20   25   30

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        35   40   45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    50   55   60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65   70   75   80

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                85   90   95

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            100   105   110

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        115   120   125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130   135   140

<210> 76
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 76
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1   5   10   15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            20   25   30

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        35   40   45

```
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
    50                  55                  60

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
65                  70                  75                  80

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                85                  90                  95

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
            100                 105                 110

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130                 135                 140
```

<210> 77
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 77

```
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1               5                   10                  15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            20                  25                  30

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        35                  40                  45

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    50                  55                  60

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
65                  70                  75                  80
```

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
100 105 110

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
115 120 125

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
130 135 140

<210> 78
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 78
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
65 70 75 80

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
85 90 95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
100 105 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr

```
        115                 120                 125

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
145                 150                 155                 160

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
                165                 170                 175

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            180                 185                 190

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
        195                 200                 205

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
    210                 215                 220

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
                245                 250                 255

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        275                 280                 285


<210> 79
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 79
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1               5                   10                  15
```

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
            20                  25                  30

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        35                  40                  45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
    50                  55                  60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
65                  70                  75                  80

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                85                  90                  95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            100                 105                 110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
        115                 120                 125

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
145                 150                 155                 160

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
                165                 170                 175

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
```

225 230 235 240

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
245 250 255

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
260 265 270

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
275 280 285

<210> 80
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 80
Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
1 5 10 15

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
20 25 30

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
35 40 45

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
50 55 60

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
65 70 75 80

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
85 90 95

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
100 105 110

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
115 120 125

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
130 135 140

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
145 150 155 160

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
165 170 175

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
180 185 190

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
195 200 205

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
210 215 220

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
225 230 235 240

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
245 250 255

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
260 265 270

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
275 280 285

<210> 81
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 81
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
1 5 10 15

```
Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
            20                  25                  30

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        35                  40                  45

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
    50                  55                  60

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
65                  70                  75                  80

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                85                  90                  95

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
            100                 105                 110

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
    130                 135                 140

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
145                 150                 155                 160

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
                165                 170                 175

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            180                 185                 190

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
        195                 200                 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
    210                 215                 220

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240
```

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
245 250 255

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
260 265 270

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
275 280 285

<210> 82
<211> 504
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>
<221> MOD_RES
<222> (63)..(63)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (207)..(207)
<223> Any amino acid

<400> 82
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
35 40 45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Xaa Pro
50 55 60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

```
Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                85                  90                  95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            100                 105                 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145                 150                 155                 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165                 170                 175

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180                 185                 190

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Xaa Pro
        195                 200                 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    210                 215                 220

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                245                 250                 255

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    290                 295                 300
```

```
Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335


Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            340                 345                 350


Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380


Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400


Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                405                 410                 415


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430


Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        435                 440                 445


Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460


Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480


Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                485                 490                 495


Gly Thr Ser Ser Thr Gly Ser Pro
            500
```

<210> 83
<211> 540

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 83
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
35 40 45

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr
50 55 60

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
65 70 75 80

Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
85 90 95

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
100 105 110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
115 120 125

Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
130 135 140

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
145 150 155 160

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
165 170 175

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
180 185 190

```
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
        195                 200                 205

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
    210                 215                 220

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
225                 230                 235                 240

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
                245                 250                 255

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
            260                 265                 270

Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
        275                 280                 285

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
    290                 295                 300

Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly
305                 310                 315                 320

Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
                325                 330                 335

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
            340                 345                 350

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
        355                 360                 365

Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
    370                 375                 380

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
385                 390                 395                 400

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
                405                 410                 415
```

```
Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
            420                 425                 430


Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
        435                 440                 445


Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly
    450                 455                 460


Ser Ala Ser Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
465                 470                 475                 480


Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
                485                 490                 495


Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
            500                 505                 510


Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
        515                 520                 525


Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
    530                 535                 540


<210> 84
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 84
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly
1               5                   10                  15


Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
            20                  25                  30


Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
        35                  40                  45
```

```
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
    50                  55                  60

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser
65                  70                  75                  80

Glu Gly Gly Pro Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
                85                  90                  95

Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu
            100                 105                 110

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser
        115                 120                 125

Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
    130                 135                 140

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
145                 150                 155                 160

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
                165                 170                 175

Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
            180                 185                 190

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly
        195                 200                 205

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
    210                 215                 220

Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
225                 230                 235                 240

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly
                245                 250                 255

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
            260                 265                 270
```

```
Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
        275                 280                 285

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro
    290                 295                 300

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
305                 310                 315                 320

Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
                325                 330                 335

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro
            340                 345                 350

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser
        355                 360                 365

Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
    370                 375                 380

Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu
385                 390                 395                 400

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
                405                 410                 415

Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
            420                 425                 430

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
        435                 440                 445

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
    450                 455                 460

Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
465                 470                 475                 480

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu
```

485 490 495

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
500 505 510

Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
515 520 525

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Glu Gly
530 535 540

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
545 550 555 560

Glu Gly Gly Pro Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
565 570 575

<210> 85
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 85
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

```
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
            100                 105                 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145                 150                 155                 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
```

```
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525
```

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
530 535 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545 550 555 560

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
565 570 575

<210> 86
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 86
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
35 40 45

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr
50 55 60

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
65 70 75 80

Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
85 90 95

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
100 105 110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
115 120 125

Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro

```
    130                 135                 140

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
145                 150                 155                 160

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
                165                 170                 175

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
            180                 185                 190

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
        195                 200                 205

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
    210                 215                 220

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
225                 230                 235                 240

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
                245                 250                 255

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
            260                 265                 270

Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
        275                 280                 285

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
    290                 295                 300

Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly
305                 310                 315                 320

Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
                325                 330                 335

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
            340                 345                 350
```

```
Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
        355                 360                 365

Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
    370                 375                 380

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
385                 390                 395                 400

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
                405                 410                 415

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
            420                 425                 430

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
        435                 440                 445

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly
    450                 455                 460

Ser Ala Ser Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
465                 470                 475                 480

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
                485                 490                 495

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
            500                 505                 510

Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
        515                 520                 525

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
    530                 535                 540

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
545                 550                 555                 560

Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                565                 570                 575
```

<210> 87
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 87
Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
1 5 10 15

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
20 25 30

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
35 40 45

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
50 55 60

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
65 70 75 80

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
85 90 95

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
100 105 110

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
115 120 125

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
130 135 140

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
145 150 155 160

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
165 170 175

```
Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            180                 185                 190

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
        195                 200                 205

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
    210                 215                 220

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
225                 230                 235                 240

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                245                 250                 255

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            260                 265                 270

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
        275                 280                 285

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    290                 295                 300

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
305                 310                 315                 320

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
                325                 330                 335

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser
            340                 345                 350

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        355                 360                 365

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    370                 375                 380

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
385                 390                 395                 400
```

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
405 410 415

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
420 425 430

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
435 440 445

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
450 455 460

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
465 470 475 480

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
485 490 495

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
500 505 510

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
515 520 525

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
530 535 540

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
545 550 555 560

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
565 570 575

<210> 88
<211> 625
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 88

```
Met Ala Glu Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Pro
1               5                   10                  15

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            20                  25                  30

Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        35                  40                  45

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
    50                  55                  60

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
65                  70                  75                  80

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
                85                  90                  95

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            100                 105                 110

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        115                 120                 125

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    130                 135                 140

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
145                 150                 155                 160

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
                165                 170                 175

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            180                 185                 190

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
        195                 200                 205

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
    210                 215                 220
```

```
Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
225                 230                 235                 240


Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
                245                 250                 255


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            260                 265                 270


Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
        275                 280                 285


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    290                 295                 300


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
305                 310                 315                 320


Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                325                 330                 335


Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            340                 345                 350


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        355                 360                 365


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    370                 375                 380


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
385                 390                 395                 400


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                405                 410                 415


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            420                 425                 430


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        435                 440                 445
```

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
450 455 460

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
465 470 475 480

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
485 490 495

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
500 505 510

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
515 520 525

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
530 535 540

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
545 550 555 560

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
565 570 575

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
580 585 590

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
595 600 605

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
610 615 620

Pro
625

<210> 89
<211> 836
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 89
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
1 5 10 15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro Gly Gly Ser Ser
20 25 30

Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
35 40 45

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro
50 55 60

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser
65 70 75 80

Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
85 90 95

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro
100 105 110

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
115 120 125

Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
130 135 140

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
145 150 155 160

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser
165 170 175

Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
180 185 190

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
195 200 205

```
Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
    210                 215                 220

Ser Gly Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
225                 230                 235                 240

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly
                245                 250                 255

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
            260                 265                 270

Gly Glu Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
        275                 280                 285

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
    290                 295                 300

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
305                 310                 315                 320

Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
                325                 330                 335

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly
            340                 345                 350

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
        355                 360                 365

Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
    370                 375                 380

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly
385                 390                 395                 400

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
                405                 410                 415

Gly Glu Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
```

```
            420                 425                 430

Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Glu Gly
        435                 440                 445

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
    450                 455                 460

Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
465                 470                 475                 480

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro
                485                 490                 495

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu
            500                 505                 510

Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
        515                 520                 525

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Glu Gly
    530                 535                 540

Ser Ser Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
545                 550                 555                 560

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
                565                 570                 575

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
            580                 585                 590

Gly Glu Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
        595                 600                 605

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly
    610                 615                 620

Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser
625                 630                 635                 640
```

Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
645 650 655

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
660 665 670

Ser Ser Gly Pro Gly Glu Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser
675 680 685

Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
690 695 700

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
705 710 715 720

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
725 730 735

Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
740 745 750

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly
755 760 765

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
770 775 780

Glu Gly Gly Pro Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
785 790 795 800

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
805 810 815

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu
820 825 830

Ser Gly Ser Ser
835

<210> 90
<211> 864
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 90
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
100 105 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145 150 155 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
165 170 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
180 185 190

```
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415
```

```
Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545                 550                 555                 560

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            580                 585                 590

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    610                 615                 620

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625                 630                 635                 640
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                645                 650                 655

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        675                 680                 685

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    690                 695                 700

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
                725                 730                 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
    770                 775                 780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                805                 810                 815

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            820                 825                 830

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
```

850 855 860

<210> 91
<211> 875
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>
<221> MOD_RES
<222> (430)..(432)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (443)..(446)
<223> Any amino acid

<400> 91
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
35 40 45

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr
50 55 60

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
65 70 75 80

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
85 90 95

Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
100 105 110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
115 120 125

```
Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
    130                 135                 140

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
145                 150                 155                 160

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
                165                 170                 175

Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
            180                 185                 190

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr
        195                 200                 205

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
    210                 215                 220

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
225                 230                 235                 240

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
                245                 250                 255

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
            260                 265                 270

Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
        275                 280                 285

Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
    290                 295                 300

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
305                 310                 315                 320

Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                325                 330                 335

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
            340                 345                 350
```

```
Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
        355                 360                 365

Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
    370                 375                 380

Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
385                 390                 395                 400

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
                405                 410                 415

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Pro Xaa Xaa Xaa
            420                 425                 430

Gly Ala Ser Ala Ser Gly Ala Pro Ser Thr Xaa Xaa Xaa Xaa Ser Glu
        435                 440                 445

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
    450                 455                 460

Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
465                 470                 475                 480

Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu
                485                 490                 495

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
            500                 505                 510

Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly
        515                 520                 525

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser
    530                 535                 540

Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser
545                 550                 555                 560

Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
```

565 570 575

Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu
580 585 590

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
595 600 605

Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
610 615 620

Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro
625 630 635 640

Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser
645 650 655

Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
660 665 670

Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Ser
675 680 685

Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
690 695 700

Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
705 710 715 720

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser
725 730 735

Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
740 745 750

Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly
755 760 765

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser
770 775 780

Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
785 790 795 800

Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly
805 810 815

Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser
820 825 830

Gly Glu Ser Ser Thr Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
835 840 845

Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
850 855 860

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
865 870 875

<210> 92
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 92
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
35 40 45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
50 55 60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro

```
                85                  90                  95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            100                 105                 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145                 150                 155                 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165                 170                 175

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180                 185                 190

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        195                 200                 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    210                 215                 220

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                245                 250                 255

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    290                 295                 300
```

```
Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            340                 345                 350

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                405                 410                 415

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        435                 440                 445

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            500                 505                 510

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        515                 520                 525
```

```
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    530                 535                 540

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            580                 585                 590

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        595                 600                 605

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
625                 630                 635                 640

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                645                 650                 655

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            660                 665                 670

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        675                 680                 685

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    690                 695                 700

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
705                 710                 715                 720

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
                725                 730                 735

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            740                 745                 750
```

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        755   760   765

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    770   775   780

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
785   790   795   800

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                805   810   815

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            820   825   830

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        835   840   845

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    850   855   860

<210> 93
<211> 875
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 93
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
1   5   10   15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
            20   25   30

Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
        35   40   45

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
    50   55   60

```
Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
65                  70                  75                  80


Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                85                  90                  95


Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu Pro
            100                 105                 110


Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125


Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
145                 150                 155                 160


Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175


Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190


Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
        195                 200                 205


Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    210                 215                 220


Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
225                 230                 235                 240


Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                245                 250                 255


Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270


Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285
```

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    290                 295                 300

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
305                 310                 315                 320

Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            340                 345                 350

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
385                 390                 395                 400

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Ala Ser Ala Ser Gly Ala Pro Ser Thr Gly Gly Thr Ser Glu Ser
        435                 440                 445

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    450                 455                 460

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
465                 470                 475                 480

Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu
                485                 490                 495

Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
```

```
            500                 505                 510

Thr Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        515                 520                 525

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
    530                 535                 540

Ala Ser Thr Gly Thr Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
545                 550                 555                 560

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                565                 570                 575

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Thr Ser Ser
            580                 585                 590

Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser
        595                 600                 605

Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
    610                 615                 620

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
625                 630                 635                 640

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                645                 650                 655

Ser Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly
            660                 665                 670

Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu
        675                 680                 685

Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    690                 695                 700

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
705                 710                 715                 720
```

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Thr Pro
725 730 735

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
740 745 750

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
755 760 765

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
770 775 780

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
785 790 795 800

Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
805 810 815

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
820 825 830

Thr Ser Ser Thr Gly Ser Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
835 840 845

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
850 855 860

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
865 870 875

<210> 94
<211> 913
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 94
Met Ala Glu Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Pro
1 5 10 15

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly

```
            20                  25                  30

Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        35                  40                  45

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
    50                  55                  60

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
65                  70                  75                  80

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
                85                  90                  95

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            100                 105                 110

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        115                 120                 125

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    130                 135                 140

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
145                 150                 155                 160

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
                165                 170                 175

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            180                 185                 190

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
        195                 200                 205

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
    210                 215                 220

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
225                 230                 235                 240
```

```
Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
                245                 250                 255

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            260                 265                 270

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
        275                 280                 285

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    290                 295                 300

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
305                 310                 315                 320

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                325                 330                 335

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            340                 345                 350

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        355                 360                 365

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    370                 375                 380

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
385                 390                 395                 400

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                405                 410                 415

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            420                 425                 430

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        435                 440                 445

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
    450                 455                 460
```

```
Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
465                 470                 475                 480


Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                485                 490                 495


Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            500                 505                 510


Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
        515                 520                 525


Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    530                 535                 540


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
545                 550                 555                 560


Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
                565                 570                 575


Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
            580                 585                 590


Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
        595                 600                 605


Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    610                 615                 620


Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
625                 630                 635                 640


Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
                645                 650                 655


Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
            660                 665                 670


Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
        675                 680                 685
```

```
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
    690                 695                 700

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
705                 710                 715                 720

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
                725                 730                 735

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
            740                 745                 750

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
        755                 760                 765

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    770                 775                 780

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
785                 790                 795                 800

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                805                 810                 815

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu
            820                 825                 830

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
        835                 840                 845

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    850                 855                 860

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
865                 870                 875                 880

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
                885                 890                 895

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
```

900 905 910

Pro

<210> 95
<211> 924
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 95
Met Ala Glu Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser
1 5 10 15

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
20 25 30

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
35 40 45

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
50 55 60

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
65 70 75 80

Thr Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly
85 90 95

Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr
100 105 110

Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro
115 120 125

Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser
130 135 140

Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu
145 150 155 160

```
Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
                165                 170                 175

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
            180                 185                 190

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        195                 200                 205

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
    210                 215                 220

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
225                 230                 235                 240

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
                245                 250                 255

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
            260                 265                 270

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        275                 280                 285

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    290                 295                 300

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
305                 310                 315                 320

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                325                 330                 335

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
            340                 345                 350

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
        355                 360                 365

Thr Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
```

```
    370                 375                 380

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
385                 390                 395                 400

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Ser Thr Glu Pro Ser
                405                 410                 415

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            420                 425                 430

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
        435                 440                 445

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
    450                 455                 460

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
465                 470                 475                 480

Pro Gly Ala Ser Ala Ser Gly Ala Pro Ser Thr Gly Gly Thr Ser Glu
                485                 490                 495

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
            500                 505                 510

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
    530                 535                 540

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
545                 550                 555                 560

Ser Thr Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                565                 570                 575

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
            580                 585                 590
```

```
Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        595                 600                 605

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    610                 615                 620

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Thr Ser
625                 630                 635                 640

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
                645                 650                 655

Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
        675                 680                 685

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
    690                 695                 700

Gly Ser Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
705                 710                 715                 720

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
                725                 730                 735

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            740                 745                 750

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        755                 760                 765

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Thr
    770                 775                 780

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
785                 790                 795                 800

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                805                 810                 815
```

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
820 825 830

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
835 840 845

Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
850 855 860

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
865 870 875 880

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Ser Glu Ser Ala Thr Pro
885 890 895

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
900 905 910

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
915 920

<210> 96
<211> 1318
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 96
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
20 25 30

Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
35 40 45

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
50 55 60

```
Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
65                  70                  75                  80

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                85                  90                  95

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu Pro
            100                 105                 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
145                 150                 155                 160

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    210                 215                 220

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
225                 230                 235                 240

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285
```

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    290                 295                 300

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
305                 310                 315                 320

Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            340                 345                 350

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
385                 390                 395                 400

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Pro Glu Pro Thr Gly Pro Ala Pro Ser Gly Gly Ser Glu Pro Ala
        435                 440                 445

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    450                 455                 460

Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
465                 470                 475                 480

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
                485                 490                 495

Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
            500                 505                 510
```

```
Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        515                 520                 525

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly
    530                 535                 540

Ser Pro Thr Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser
545                 550                 555                 560

Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
                565                 570                 575

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu
            580                 585                 590

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
        595                 600                 605

Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
    610                 615                 620

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
625                 630                 635                 640

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
                645                 650                 655

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
            660                 665                 670

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
        675                 680                 685

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    690                 695                 700

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
705                 710                 715                 720

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Pro Ser
```

```
                725                 730                 735

Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
            740                 745                 750

Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
        755                 760                 765

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
    770                 775                 780

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
785                 790                 795                 800

Ser Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                805                 810                 815

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
            820                 825                 830

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
        835                 840                 845

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    850                 855                 860

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Ala Ser
865                 870                 875                 880

Gly Ala Pro Ser Thr Gly Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr
                885                 890                 895

Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr
            900                 905                 910

Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Glu Ser Ala
        915                 920                 925

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
    930                 935                 940
```

```
Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
945                 950                 955                 960


Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser
                965                 970                 975


Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
            980                 985                 990


Ser Pro Gly Thr Ser Thr Pro Glu  Ser Gly Ser Ala Ser  Pro Gly Thr
        995                 1000                1005


Ser Pro  Ser Gly Glu Ser Ser  Thr Ala Pro Gly Thr  Ser Pro Ser
    1010                1015                1020


Gly Glu  Ser Ser Thr Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1025                1030                1035


Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1040                1045                1050


Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1055                1060                1065


Thr Ser  Glu Ser Pro Ser Gly  Thr Ala Pro Gly Ser  Thr Ser Glu
    1070                1075                1080


Ser Pro  Ser Gly Thr Ala Pro  Gly Thr Ser Thr Pro  Glu Ser Gly
    1085                1090                1095


Ser Ala  Ser Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1100                1105                1110


Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1115                1120                1125


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1130                1135                1140


Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1145                1150                1155
```

```
Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1160                1165                1170


Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1175                1180                1185


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1190                1195                1200


Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Thr Ser Glu  Ser Pro Ser
    1205                1210                1215


Gly Thr  Ala Pro Gly Thr Ser  Pro Ser Gly Glu Ser  Ser Thr Ala
    1220                1225                1230


Pro Gly  Ser Thr Ser Ser Thr  Ala Glu Ser Pro Gly  Pro Gly Ser
    1235                1240                1245


Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1250                1255                1260


Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1265                1270                1275


Ser Ser  Ser Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1280                1285                1290


Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1295                1300                1305


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1310                1315


<210> 97
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 97
```

```
Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr
1               5                   10                  15

Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly
            20                  25                  30

Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
        35                  40                  45

Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Glu Pro
    50                  55                  60

Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Glu Pro Ala Thr Ser Gly
65                  70                  75                  80

Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
                85                  90                  95

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro
            100                 105                 110

Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Thr Glu Pro Ser Glu
        115                 120                 125

Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
    130                 135                 140

Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Thr
145                 150                 155                 160

Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
            180                 185                 190

Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Glu
        195                 200                 205

Pro Ser Thr Ser Glu Pro Gly Ala Gly Ser Gly Ala Ser Glu Pro Thr
    210                 215                 220
```

```
Ser Thr Glu Pro Gly Thr Ser Glu Pro Ser Thr Ser Glu Pro Gly Ala
225                 230                 235                 240


Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Glu Pro
                245                 250                 255


Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270


Pro Gly Ser Ala Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala
        275                 280                 285


Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro Gly Ser Glu Pro
    290                 295                 300


Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320


Thr Glu Pro Ser Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
                325                 330                 335


Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Thr
            340                 345                 350


Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly
        355                 360                 365


Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
    370                 375                 380


Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro
385                 390                 395                 400


Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr
                405                 410                 415


Ser Thr Glu Pro Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala
            420                 425                 430


Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro Gly Ser Glu Pro
        435                 440                 445
```

```
Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr
    450                 455                 460

Ser Thr Glu Pro Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
465                 470                 475                 480

Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly
            500                 505                 510

Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
        515                 520                 525

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro
    530                 535                 540

Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Thr Glu Pro Ser Glu
545                 550                 555                 560

Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
                565                 570                 575

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr
            580                 585                 590

Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr Glu Pro Ser Glu
        595                 600                 605

Pro Gly Ser Ala Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala
    610                 615                 620

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Glu Pro Ser Thr Ser
                645                 650                 655

Glu Pro Gly Ala Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
```

```
            660                 665                 670

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr
        675                 680                 685

Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr Glu Pro Ser Glu
    690                 695                 700

Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
705                 710                 715                 720

Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro Gly Ser Glu Pro
                725                 730                 735

Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Glu Pro Ala Thr Ser Gly
            740                 745                 750

Thr Glu Pro Ser Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
        755                 760                 765

Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Glu
    770                 775                 780

Pro Ser Thr Ser Glu Pro Gly Ala Gly Ser Glu Pro Ala Thr Ser Gly
785                 790                 795                 800

Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
                805                 810                 815

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro
            820                 825                 830

Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr
        835                 840                 845

Ser Thr Glu Pro Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala
    850                 855                 860


<210> 98
<211> 864
<212> PRT
<213> Artificial Sequence
```

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 98
Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Ser Glu Ser Gly Ala Gly Ser Thr Ala Gly Ser Glu Thr
20 25 30

Ser Thr Glu Ala Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala
35 40 45

Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala Gly Ser Glu Thr
50 55 60

Ala Thr Ser Gly Ser Glu Thr Ala Gly Thr Ser Thr Glu Ala Ser Glu
65 70 75 80

Gly Ser Ala Ser Gly Thr Ser Thr Glu Ala Ser Glu Gly Ser Ala Ser
85 90 95

Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala Gly Ser Glu Thr
100 105 110

Ala Thr Ser Gly Ser Glu Thr Ala Gly Thr Ser Thr Glu Ala Ser Glu
115 120 125

Gly Ser Ala Ser Gly Ser Thr Ala Gly Ser Glu Thr Ser Thr Glu Ala
130 135 140

Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala Gly Thr Ser Glu
145 150 155 160

Ser Ala Thr Ser Glu Ser Gly Ala Gly Ser Glu Thr Ala Thr Ser Gly
165 170 175

Ser Glu Thr Ala Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala
180 185 190

Gly Thr Ser Thr Glu Ala Ser Glu Gly Ser Ala Ser Gly Ser Glu Thr

```
        195                 200                 205

Ala Thr Ser Gly Ser Glu Thr Ala Gly Ser Glu Thr Ala Thr Ser Gly
    210                 215                 220

Ser Glu Thr Ala Gly Thr Ser Thr Glu Ala Ser Glu Gly Ser Ala Ser
225                 230                 235                 240

Gly Ser Thr Ala Gly Ser Glu Thr Ser Thr Glu Ala Gly Thr Ser Glu
                245                 250                 255

Ser Ala Thr Ser Glu Ser Gly Ala Gly Thr Ser Thr Glu Ala Ser Glu
            260                 265                 270

Gly Ser Ala Ser Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala
        275                 280                 285

Gly Ser Thr Ala Gly Ser Glu Thr Ser Thr Glu Ala Gly Ser Thr Ala
    290                 295                 300

Gly Ser Glu Thr Ser Thr Glu Ala Gly Ser Glu Thr Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Ala Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala
                325                 330                 335

Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala Gly Ser Glu Thr
            340                 345                 350

Ala Thr Ser Gly Ser Glu Thr Ala Gly Thr Ser Glu Ser Ala Thr Ser
        355                 360                 365

Glu Ser Gly Ala Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala
    370                 375                 380

Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala Gly Ser Glu Thr
385                 390                 395                 400

Ala Thr Ser Gly Ser Glu Thr Ala Gly Thr Ser Thr Glu Ala Ser Glu
                405                 410                 415
```

```
Gly Ser Ala Ser Gly Ser Thr Ala Gly Ser Glu Thr Ser Thr Glu Ala
            420                 425                 430

Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala Gly Thr Ser Glu
        435                 440                 445

Ser Ala Thr Ser Glu Ser Gly Ala Gly Ser Thr Ala Gly Ser Glu Thr
    450                 455                 460

Ser Thr Glu Ala Gly Ser Thr Ala Gly Ser Glu Thr Ser Thr Glu Ala
465                 470                 475                 480

Gly Ser Thr Ala Gly Ser Glu Thr Ser Thr Glu Ala Gly Thr Ser Thr
                485                 490                 495

Glu Ala Ser Glu Gly Ser Ala Ser Gly Ser Thr Ala Gly Ser Glu Thr
            500                 505                 510

Ser Thr Glu Ala Gly Ser Thr Ala Gly Ser Glu Thr Ser Thr Glu Ala
        515                 520                 525

Gly Thr Ser Thr Glu Ala Ser Glu Gly Ser Ala Ser Gly Ser Thr Ala
    530                 535                 540

Gly Ser Glu Thr Ser Thr Glu Ala Gly Ser Glu Thr Ala Thr Ser Gly
545                 550                 555                 560

Ser Glu Thr Ala Gly Thr Ser Thr Glu Ala Ser Glu Gly Ser Ala Ser
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala Gly Ser Glu Thr
            580                 585                 590

Ala Thr Ser Gly Ser Glu Thr Ala Gly Thr Ser Glu Ser Ala Thr Ser
        595                 600                 605

Glu Ser Gly Ala Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala
    610                 615                 620

Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala Gly Thr Ser Glu
625                 630                 635                 640
```

```
Ser Ala Thr Ser Glu Ser Gly Ala Gly Ser Glu Thr Ala Thr Ser Gly
                645                 650                 655

Ser Glu Thr Ala Gly Thr Ser Thr Glu Ala Ser Glu Gly Ser Ala Ser
            660                 665                 670

Gly Thr Ser Thr Glu Ala Ser Glu Gly Ser Ala Ser Gly Ser Thr Ala
        675                 680                 685

Gly Ser Glu Thr Ser Thr Glu Ala Gly Ser Thr Ala Gly Ser Glu Thr
    690                 695                 700

Ser Thr Glu Ala Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala
705                 710                 715                 720

Gly Thr Ser Glu Ser Ala Thr Ser Glu Ser Gly Ala Gly Thr Ser Glu
                725                 730                 735

Ser Ala Thr Ser Glu Ser Gly Ala Gly Ser Glu Thr Ala Thr Ser Gly
            740                 745                 750

Ser Glu Thr Ala Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala
        755                 760                 765

Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala Gly Thr Ser Thr
    770                 775                 780

Glu Ala Ser Glu Gly Ser Ala Ser Gly Thr Ser Glu Ser Ala Thr Ser
785                 790                 795                 800

Glu Ser Gly Ala Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala
                805                 810                 815

Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala Gly Thr Ser Glu
            820                 825                 830

Ser Ala Thr Ser Glu Ser Gly Ala Gly Thr Ser Glu Ser Ala Thr Ser
        835                 840                 845

Glu Ser Gly Ala Gly Ser Glu Thr Ala Thr Ser Gly Ser Glu Thr Ala
    850                 855                 860
```

<210> 99
<211> 948
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 99
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
50 55 60

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
65 70 75 80

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
100 105 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
115 120 125

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
145 150 155 160

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
165 170 175

```
Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            180                 185                 190

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
        195                 200                 205

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
    210                 215                 220

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
225                 230                 235                 240

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
                245                 250                 255

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
305                 310                 315                 320

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                325                 330                 335

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            340                 345                 350

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
        355                 360                 365

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    370                 375                 380

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
385                 390                 395                 400
```

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        435                 440                 445

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    450                 455                 460

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
465                 470                 475                 480

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
                485                 490                 495

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
            500                 505                 510

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
    530                 535                 540

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
545                 550                 555                 560

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
            580                 585                 590

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
        595                 600                 605

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
```

610 615 620

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625 630 635 640

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
645 650 655

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
660 665 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
675 680 685

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
690 695 700

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
705 710 715 720

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
725 730 735

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
740 745 750

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
755 760 765

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
770 775 780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
785 790 795 800

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
805 810 815

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
820 825 830

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
835 840 845

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
850 855 860

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
865 870 875 880

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
885 890 895

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
900 905 910

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
915 920 925

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
930 935 940

Glu Ser Gly Pro
945

<210> 100
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 100
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
35 40 45

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr

```
    50                  55                  60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65                  70                  75                  80

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                85                  90                  95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
            100                 105                 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    130                 135                 140

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
145                 150                 155                 160

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
                165                 170                 175

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
        195                 200                 205

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
    210                 215                 220

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
225                 230                 235                 240

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
                245                 250                 255

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270
```

```
Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
    290                 295                 300

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                325                 330                 335

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
            340                 345                 350

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
                405                 410                 415

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
    450                 455                 460

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        515                 520                 525

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    530                 535                 540

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
545                 550                 555                 560

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                565                 570                 575

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
            580                 585                 590

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
        595                 600                 605

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    610                 615                 620

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
625                 630                 635                 640

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
                645                 650                 655

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
        675                 680                 685

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
    690                 695                 700

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
705                 710                 715                 720
```

```
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
               725                 730                 735

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        755                 760                 765

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    770                 775                 780

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
785                 790                 795                 800

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
               805                 810                 815

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
            820                 825                 830

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    850                 855                 860

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
865                 870                 875                 880

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
               885                 890                 895

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            900                 905                 910

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
        915                 920                 925

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
```

```
    930                 935                 940

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
945                 950                 955                 960

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                965                 970                 975

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
            980                 985                 990

Ser Thr Glu Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
        995                 1000                1005

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1010                1015                1020

Thr
```

<210> 101
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 101

```
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
1               5                   10                  15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
            20                  25                  30

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        35                  40                  45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    50                  55                  60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
65                  70                  75                  80
```

```
Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                85                  90                  95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
            100                 105                 110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
145                 150                 155                 160

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
                165                 170                 175

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            180                 185                 190

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
        195                 200                 205

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
    210                 215                 220

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
225                 230                 235                 240

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
                245                 250                 255

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
```

```
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                325                 330                 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
        355                 360                 365

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    370                 375                 380

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
                405                 410                 415

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            420                 425                 430

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
        435                 440                 445

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
                485                 490                 495

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
            500                 505                 510
```

```
Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        515                 520                 525

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
545                 550                 555                 560

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
            580                 585                 590

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
        595                 600                 605

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    610                 615                 620

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
625                 630                 635                 640

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
                645                 650                 655

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        675                 680                 685

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
    690                 695                 700

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
705                 710                 715                 720

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                725                 730                 735
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            740                 745                 750

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        755                 760                 765

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
    770                 775                 780

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
785                 790                 795                 800

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                805                 810                 815

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
            820                 825                 830

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
        835                 840                 845

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    850                 855                 860

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
865                 870                 875                 880

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
                885                 890                 895

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            900                 905                 910

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
        915                 920                 925

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
    930                 935                 940

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
945                 950                 955                 960
```

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
965 970 975

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
980 985 990

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
995 1000 1005

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
1010 1015 1020

Ala

<210> 102
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 102
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
20 25 30

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
35 40 45

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
65 70 75 80

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
85 90 95

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            100                 105                 110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
        115                 120                 125

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
145                 150                 155                 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            180                 185                 190

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
        195                 200                 205

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
    210                 215                 220

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
225                 230                 235                 240

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
            260                 265                 270

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        275                 280                 285

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    290                 295                 300

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320
```

```
Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
            340                 345                 350

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        355                 360                 365

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    370                 375                 380

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
385                 390                 395                 400

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                405                 410                 415

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
        435                 440                 445

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
    450                 455                 460

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            500                 505                 510

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
```

```
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545                 550                 555                 560

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
            580                 585                 590

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
        595                 600                 605

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    610                 615                 620

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
625                 630                 635                 640

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
                645                 650                 655

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
        675                 680                 685

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
    690                 695                 700

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                725                 730                 735

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
            740                 745                 750
```

```
Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        755                 760                 765

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    770                 775                 780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                805                 810                 815

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
            820                 825                 830

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    850                 855                 860

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
865                 870                 875                 880

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
                885                 890                 895

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            900                 905                 910

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
        915                 920                 925

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    930                 935                 940

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
945                 950                 955                 960

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
                965                 970                 975
```

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
980 985 990

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
995 1000 1005

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
1010 1015 1020

Pro

<210> 103
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 103
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
35 40 45

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
100 105 110

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
        115                 120                 125

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
145                 150                 155                 160

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
                165                 170                 175

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            180                 185                 190

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        195                 200                 205

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    210                 215                 220

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
225                 230                 235                 240

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
                245                 250                 255

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        275                 280                 285

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
305                 310                 315                 320

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                325                 330                 335
```

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            340                 345                 350

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    370                 375                 380

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
                405                 410                 415

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            420                 425                 430

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
        435                 440                 445

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
465                 470                 475                 480

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
            500                 505                 510

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        515                 520                 525

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    530                 535                 540

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
545                 550                 555                 560
```

```
Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                565                 570                 575

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
            580                 585                 590

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    610                 615                 620

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
625                 630                 635                 640

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
                645                 650                 655

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
        675                 680                 685

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
    690                 695                 700

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
705                 710                 715                 720

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
                725                 730                 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
            740                 745                 750

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        755                 760                 765

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
```

770 775 780

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
785 790 795 800

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
805 810 815

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
820 825 830

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
835 840 845

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
850 855 860

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
865 870 875 880

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
885 890 895

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
900 905 910

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
915 920 925

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
930 935 940

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
945 950 955 960

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
965 970 975

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
980 985 990

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        995   1000   1005

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    1010   1015   1020

Thr

<210> 104
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 104
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
1   5   10   15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
            20   25   30

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        35   40   45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
    50   55   60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65   70   75   80

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                85   90   95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            100   105   110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
        115   120   125

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro

```
    130                 135                 140

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
145                 150                 155                 160

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
                165                 170                 175

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            180                 185                 190

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
    210                 215                 220

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                245                 250                 255

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
    290                 295                 300

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
305                 310                 315                 320

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                325                 330                 335

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
            340                 345                 350
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
        355                 360                 365

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
385                 390                 395                 400

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            420                 425                 430

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
    450                 455                 460

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
465                 470                 475                 480

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
                485                 490                 495

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
            500                 505                 510

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        515                 520                 525

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    530                 535                 540

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
545                 550                 555                 560

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                565                 570                 575
```

```
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
            580                 585                 590

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    610                 615                 620

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
625                 630                 635                 640

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                645                 650                 655

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            660                 665                 670

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        675                 680                 685

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    690                 695                 700

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
                725                 730                 735

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
            740                 745                 750

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        755                 760                 765

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
    770                 775                 780

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800
```

```
Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                805                 810                 815

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            820                 825                 830

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    850                 855                 860

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
865                 870                 875                 880

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
                885                 890                 895

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            900                 905                 910

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        915                 920                 925

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    930                 935                 940

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
945                 950                 955                 960

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                965                 970                 975

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            980                 985                 990

Gly Ser Ala Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
        995                 1000                1005

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
```

1010 1015 1020

Ala

<210> 105
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 105
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
50 55 60

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
100 105 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
115 120 125

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
130 135 140

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
145 150 155 160

```
Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            180                 185                 190

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
        195                 200                 205

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
    210                 215                 220

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
225                 230                 235                 240

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
                245                 250                 255

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        275                 280                 285

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
305                 310                 315                 320

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                325                 330                 335

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
        355                 360                 365

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
```

```
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
385                 390                 395                 400

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            420                 425                 430

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
        435                 440                 445

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
465                 470                 475                 480

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
                485                 490                 495

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
            500                 505                 510

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        515                 520                 525

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
    530                 535                 540

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
545                 550                 555                 560

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                565                 570                 575

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
            580                 585                 590
```

```
Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
        595                 600                 605

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    610                 615                 620

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
625                 630                 635                 640

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
                645                 650                 655

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
        675                 680                 685

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
    690                 695                 700

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
705                 710                 715                 720

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
                725                 730                 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        755                 760                 765

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    770                 775                 780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
785                 790                 795                 800

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                805                 810                 815
```

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
820 825 830

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
835 840 845

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
850 855 860

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
865 870 875 880

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
885 890 895

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
900 905 910

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
915 920 925

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
930 935 940

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
945 950 955 960

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
965 970 975

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
980 985 990

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
995 1000 1005

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro
1010 1015 1020

Ala

<210> 106
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 106
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
50 55 60

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
65 70 75 80

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
100 105 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
115 120 125

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
145 150 155 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
165 170 175

```
Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            180                 185                 190

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
        195                 200                 205

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    210                 215                 220

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
225                 230                 235                 240

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                325                 330                 335

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
            340                 345                 350

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
        355                 360                 365

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
385                 390                 395                 400
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
                405                 410                 415

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            420                 425                 430

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
        435                 440                 445

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
    450                 455                 460

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
465                 470                 475                 480

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
                485                 490                 495

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
            500                 505                 510

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
545                 550                 555                 560

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                565                 570                 575

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
            580                 585                 590

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        595                 600                 605

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
```

610 615 620

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
625 630 635 640

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
645 650 655

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
660 665 670

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
675 680 685

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
690 695 700

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
705 710 715 720

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
725 730 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
740 745 750

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
755 760 765

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
770 775 780

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
785 790 795 800

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
805 810 815

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
820 825 830

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    850                 855                 860

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
865                 870                 875                 880

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
                885                 890                 895

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            900                 905                 910

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
        915                 920                 925

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    930                 935                 940

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
945                 950                 955                 960

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
                965                 970                 975

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
            980                 985                 990

Gly Ser Ala Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
        995                 1000                1005

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1010                1015                1020

Thr
```

<210> 107
<211> 1024
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 107
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
50 55 60

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
100 105 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
145 150 155 160

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
165 170 175

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
180 185 190

```
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        195                 200                 205

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    210                 215                 220

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
                245                 250                 255

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
            260                 265                 270

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
    290                 295                 300

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                325                 330                 335

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
            340                 345                 350

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
        355                 360                 365

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
385                 390                 395                 400

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
                405                 410                 415
```

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
420 425 430

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
435 440 445

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
450 455 460

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
465 470 475 480

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
485 490 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
500 505 510

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
515 520 525

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
530 535 540

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
545 550 555 560

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
565 570 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
580 585 590

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
595 600 605

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
610 615 620

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
625 630 635 640

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
                645                 650                 655

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            660                 665                 670

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
        675                 680                 685

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
    690                 695                 700

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                725                 730                 735

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
            740                 745                 750

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
    770                 775                 780

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
785                 790                 795                 800

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                805                 810                 815

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
            820                 825                 830

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
```

```
    850                 855                 860

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
865                 870                 875                 880

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                885                 890                 895

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            900                 905                 910

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
        915                 920                 925

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    930                 935                 940

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
945                 950                 955                 960

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
                965                 970                 975

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
            980                 985                 990

Ser Glu Thr Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
        995                 1000                1005

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1010                1015                1020

Glu
```

<210> 108
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 108
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
1   5   10   15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
            20   25   30

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        35   40   45

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
    50   55   60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
65   70   75   80

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                85   90   95

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
            100   105   110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
        115   120   125

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    130   135   140

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
145   150   155   160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
                165   170   175

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            180   185   190

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        195   200   205

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu

```
    210                 215                 220

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        275                 280                 285

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
    290                 295                 300

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
305                 310                 315                 320

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
        355                 360                 365

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    370                 375                 380

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
385                 390                 395                 400

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                405                 410                 415

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            420                 425                 430
```

```
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
        435                 440                 445

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
    450                 455                 460

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
465                 470                 475                 480

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545                 550                 555                 560

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
            580                 585                 590

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        595                 600                 605

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    610                 615                 620

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
                645                 650                 655
```

```
Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            660                 665                 670

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        675                 680                 685

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
    690                 695                 700

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
705                 710                 715                 720

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
                725                 730                 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
    770                 775                 780

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
785                 790                 795                 800

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                805                 810                 815

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            820                 825                 830

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
        835                 840                 845

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    850                 855                 860

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
865                 870                 875                 880
```

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
                885                 890                 895


Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            900                 905                 910


Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        915                 920                 925


Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    930                 935                 940


Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
945                 950                 955                 960


Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
                965                 970                 975


Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            980                 985                 990


Glu Ser Gly Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
        995                 1000                1005


Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu
    1010                1015                1020


Pro
```

<210> 109
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 109

```
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
1               5                   10                  15
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            20                  25                  30

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        35                  40                  45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
    50                  55                  60

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
65                  70                  75                  80

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                85                  90                  95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            100                 105                 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
        115                 120                 125

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    130                 135                 140

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
145                 150                 155                 160

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
                165                 170                 175

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
        195                 200                 205

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    210                 215                 220

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
225                 230                 235                 240
```

```
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
                245                 250                 255

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
    290                 295                 300

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                325                 330                 335

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
            340                 345                 350

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        355                 360                 365

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    370                 375                 380

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
                405                 410                 415

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            420                 425                 430

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
        435                 440                 445

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
```

```
    450                 455                 460

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
                485                 490                 495

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
            500                 505                 510

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        515                 520                 525

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
    530                 535                 540

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
545                 550                 555                 560

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                565                 570                 575

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
            580                 585                 590

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    610                 615                 620

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
625                 630                 635                 640

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
                645                 650                 655

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            660                 665                 670
```

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
        675                 680                 685

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
    690                 695                 700

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
                725                 730                 735

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
    770                 775                 780

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                805                 810                 815

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
            820                 825                 830

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        835                 840                 845

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    850                 855                 860

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
865                 870                 875                 880

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                885                 890                 895
```

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
900 905 910

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
915 920 925

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
930 935 940

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
945 950 955 960

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
965 970 975

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
980 985 990

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
995 1000 1005

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
1010 1015 1020

Pro

<210> 110
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 110
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

```
Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        35                  40                  45

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
    50                  55                  60

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
65                  70                  75                  80

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                85                  90                  95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
            100                 105                 110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        115                 120                 125

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
145                 150                 155                 160

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
                165                 170                 175

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
    210                 215                 220

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
225                 230                 235                 240

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
                245                 250                 255
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
305                 310                 315                 320

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                325                 330                 335

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
            340                 345                 350

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
        355                 360                 365

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
385                 390                 395                 400

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
                405                 410                 415

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            420                 425                 430

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
        435                 440                 445

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480
```

```
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
                485                 490                 495

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        515                 520                 525

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    530                 535                 540

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
545                 550                 555                 560

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                565                 570                 575

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            580                 585                 590

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
        595                 600                 605

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    610                 615                 620

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
                645                 650                 655

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            660                 665                 670

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        675                 680                 685

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
```

```
    690                 695                 700

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
705                 710                 715                 720

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
                725                 730                 735

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        755                 760                 765

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    770                 775                 780

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                805                 810                 815

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
            820                 825                 830

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
        835                 840                 845

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    850                 855                 860

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
865                 870                 875                 880

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
                885                 890                 895

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            900                 905                 910
```

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        915   920   925

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    930   935   940

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
945   950   955   960

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
                965   970   975

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
            980   985   990

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        995   1000   1005

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    1010   1015   1020

Glu

<210> 111
<211> 948
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 111
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
1   5   10   15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            20   25   30

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        35   40   45

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly

```
    50                  55                  60

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
65                  70                  75                  80

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                85                  90                  95

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
            100                 105                 110

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
        115                 120                 125

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    130                 135                 140

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
145                 150                 155                 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165                 170                 175

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            180                 185                 190

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
        195                 200                 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
    210                 215                 220

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
225                 230                 235                 240

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
                245                 250                 255

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270
```

```
Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        275                 280                 285

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
    290                 295                 300

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
305                 310                 315                 320

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
            340                 345                 350

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
385                 390                 395                 400

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
                405                 410                 415

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            420                 425                 430

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
        435                 440                 445

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
                485                 490                 495
```

```
Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
            500                 505                 510

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        515                 520                 525

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
    530                 535                 540

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            580                 585                 590

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
        595                 600                 605

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
625                 630                 635                 640

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
                645                 650                 655

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            660                 665                 670

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        675                 680                 685

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    690                 695                 700

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
705                 710                 715                 720
```

```
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                725                 730                 735

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            740                 745                 750

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        755                 760                 765

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
    770                 775                 780

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
785                 790                 795                 800

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                805                 810                 815

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
            820                 825                 830

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        835                 840                 845

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    850                 855                 860

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
865                 870                 875                 880

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                885                 890                 895

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            900                 905                 910

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        915                 920                 925

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
```

930 935 940

Thr Gly Ser Pro
945

<210> 112
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 112
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
1 5 10 15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
35 40 45

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
50 55 60

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
65 70 75 80

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
100 105 110

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
115 120 125

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
130 135 140

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
145 150 155 160

```
Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
                165                 170                 175

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180                 185                 190

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
        195                 200                 205

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    210                 215                 220

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
225                 230                 235                 240

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
                245                 250                 255

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            260                 265                 270

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        275                 280                 285

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    290                 295                 300

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
305                 310                 315                 320

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
            340                 345                 350

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
```

```
    370                 375                 380

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                405                 410                 415

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
        435                 440                 445

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    450                 455                 460

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
465                 470                 475                 480

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            500                 505                 510

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        515                 520                 525

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
    530                 535                 540

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
545                 550                 555                 560

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                565                 570                 575

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
            580                 585                 590
```

```
Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        595                 600                 605

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
625                 630                 635                 640

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                645                 650                 655

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            660                 665                 670

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
        675                 680                 685

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    690                 695                 700

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
705                 710                 715                 720

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                725                 730                 735

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            740                 745                 750

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        755                 760                 765

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
    770                 775                 780

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
785                 790                 795                 800

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                805                 810                 815
```

```
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
            820                 825                 830

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        835                 840                 845

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    850                 855                 860

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
865                 870                 875                 880

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
                885                 890                 895

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            900                 905                 910

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        915                 920                 925

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    930                 935                 940

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
945                 950                 955                 960

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
                965                 970                 975

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            980                 985                 990

Thr Gly Ser Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
        995                 1000                1005

Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser
    1010                1015                1020

Thr
```

<210> 113
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 113
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
35 40 45

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
50 55 60

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
65 70 75 80

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
85 90 95

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
100 105 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
115 120 125

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
130 135 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145 150 155 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
165 170 175

```
Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            180                 185                 190

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        195                 200                 205

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    210                 215                 220

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
225                 230                 235                 240

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
                245                 250                 255

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            260                 265                 270

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        275                 280                 285

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
    290                 295                 300

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                325                 330                 335

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
            340                 345                 350

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
385                 390                 395                 400
```

```
Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
                405                 410                 415

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
        435                 440                 445

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    450                 455                 460

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            500                 505                 510

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        515                 520                 525

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
    530                 535                 540

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
            580                 585                 590

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        595                 600                 605

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
```

610 615 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
625 630 635 640

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
645 650 655

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
660 665 670

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
675 680 685

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
690 695 700

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
705 710 715 720

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
725 730 735

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
740 745 750

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
755 760 765

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
770 775 780

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
785 790 795 800

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
805 810 815

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
820 825 830

```
Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
        835                 840                 845

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    850                 855                 860

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
865                 870                 875                 880

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
                885                 890                 895

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            900                 905                 910

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
        915                 920                 925

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    930                 935                 940

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
945                 950                 955                 960

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
                965                 970                 975

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            980                 985                 990

Gly Thr Gly Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
        995                 1000                1005

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser
    1010                1015                1020

Thr
```

<210> 114
<211> 1024
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 114
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
1 5 10 15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
35 40 45

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
50 55 60

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
65 70 75 80

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
100 105 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
115 120 125

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
130 135 140

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
145 150 155 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
165 170 175

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
180 185 190

```
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
        195                 200                 205

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    210                 215                 220

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
225                 230                 235                 240

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
                245                 250                 255

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            260                 265                 270

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
    290                 295                 300

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
305                 310                 315                 320

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                325                 330                 335

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
            340                 345                 350

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                405                 410                 415
```

```
Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
        435                 440                 445

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
                485                 490                 495

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            500                 505                 510

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        515                 520                 525

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
    530                 535                 540

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
            580                 585                 590

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
        595                 600                 605

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
    610                 615                 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
625                 630                 635                 640
```

```
Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                645                 650                 655

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            660                 665                 670

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
        675                 680                 685

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    690                 695                 700

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
705                 710                 715                 720

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
                725                 730                 735

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
            740                 745                 750

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        755                 760                 765

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
    770                 775                 780

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
785                 790                 795                 800

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                805                 810                 815

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
            820                 825                 830

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        835                 840                 845

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
```

```
    850                 855                 860

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
865                 870                 875                 880

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                885                 890                 895

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            900                 905                 910

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        915                 920                 925

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    930                 935                 940

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
945                 950                 955                 960

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
                965                 970                 975

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            980                 985                 990

Gly Thr Gly Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
        995                 1000                1005

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1010                1015                1020

Pro
```

<210> 115
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 115
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
20 25 30

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
35 40 45

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
50 55 60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
65 70 75 80

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
85 90 95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
100 105 110

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
115 120 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
130 135 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
145 150 155 160

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
165 170 175

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
180 185 190

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
195 200 205

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala

```
    210                 215                 220

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
                245                 250                 255

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        275                 280                 285

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    290                 295                 300

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
305                 310                 315                 320

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                325                 330                 335

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
            340                 345                 350

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
385                 390                 395                 400

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                405                 410                 415

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            420                 425                 430
```

```
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
        435                 440                 445

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
465                 470                 475                 480

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
                485                 490                 495

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            500                 505                 510

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        515                 520                 525

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
    530                 535                 540

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
545                 550                 555                 560

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                565                 570                 575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            580                 585                 590

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
        595                 600                 605

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
625                 630                 635                 640

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                645                 650                 655
```

```
Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            660                 665                 670

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        675                 680                 685

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    690                 695                 700

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
705                 710                 715                 720

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
                725                 730                 735

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            740                 745                 750

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        755                 760                 765

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    770                 775                 780

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
785                 790                 795                 800

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                805                 810                 815

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
            820                 825                 830

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
        835                 840                 845

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    850                 855                 860

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
865                 870                 875                 880
```

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
885 890 895

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
900 905 910

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
915 920 925

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
930 935 940

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
945 950 955 960

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
965 970 975

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
980 985 990

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
995 1000 1005

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
1010 1015 1020

Gly

<210> 116
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 116
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1 5 10 15

```
Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            20                  25                  30

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        35                  40                  45

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
    50                  55                  60

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
65                  70                  75                  80

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                85                  90                  95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
            100                 105                 110

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
        115                 120                 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130                 135                 140

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
145                 150                 155                 160

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165                 170                 175

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            180                 185                 190

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
        195                 200                 205

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    210                 215                 220

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
225                 230                 235                 240
```

```
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
                245                 250                 255

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            260                 265                 270

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        275                 280                 285

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
    290                 295                 300

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
305                 310                 315                 320

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
            340                 345                 350

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        355                 360                 365

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
    370                 375                 380

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                405                 410                 415

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            420                 425                 430

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        435                 440                 445

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
```

```
    450                 455                 460

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
                485                 490                 495

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            500                 505                 510

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        515                 520                 525

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
    530                 535                 540

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
545                 550                 555                 560

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                565                 570                 575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
            580                 585                 590

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
        595                 600                 605

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
625                 630                 635                 640

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                645                 650                 655

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            660                 665                 670
```

```
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
        675                 680                 685

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    690                 695                 700

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
705                 710                 715                 720

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
                725                 730                 735

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            740                 745                 750

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        755                 760                 765

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
    770                 775                 780

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
785                 790                 795                 800

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                805                 810                 815

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            820                 825                 830

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        835                 840                 845

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    850                 855                 860

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
865                 870                 875                 880

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
                885                 890                 895
```

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
900 905 910

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
915 920 925

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
930 935 940

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
945 950 955 960

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
965 970 975

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
980 985 990

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
995 1000 1005

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser
1010 1015 1020

Pro

<210> 117
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 117
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
1 5 10 15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
20 25 30

```
Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        35                  40                  45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
    50                  55                  60

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
65                  70                  75                  80

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                85                  90                  95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            100                 105                 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        115                 120                 125

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
    130                 135                 140

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
145                 150                 155                 160

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
                165                 170                 175

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            180                 185                 190

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
        195                 200                 205

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    210                 215                 220

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
                245                 250                 255
```

```
Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
    290                 295                 300

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
305                 310                 315                 320

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                325                 330                 335

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
            340                 345                 350

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        355                 360                 365

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
    370                 375                 380

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
385                 390                 395                 400

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                405                 410                 415

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            420                 425                 430

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        435                 440                 445

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    450                 455                 460

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480
```

```
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
                485                 490                 495

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
            500                 505                 510

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        515                 520                 525

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
    530                 535                 540

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
545                 550                 555                 560

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
            580                 585                 590

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        595                 600                 605

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
625                 630                 635                 640

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
                645                 650                 655

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            660                 665                 670

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
        675                 680                 685

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
```

690 695 700

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
705 710 715 720

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
725 730 735

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
740 745 750

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
755 760 765

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
770 775 780

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
785 790 795 800

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
805 810 815

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
820 825 830

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
835 840 845

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
850 855 860

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
865 870 875 880

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
885 890 895

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
900 905 910

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
915 920 925

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
930 935 940

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
945 950 955 960

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
965 970 975

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
980 985 990

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
995 1000 1005

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
1010 1015 1020

Gly

<210> 118
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 118
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
20 25 30

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
35 40 45

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro

```
    50                  55                  60

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
65                  70                  75                  80

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                85                  90                  95

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
            100                 105                 110

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
        115                 120                 125

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
    130                 135                 140

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
145                 150                 155                 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                165                 170                 175

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            180                 185                 190

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
        195                 200                 205

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    210                 215                 220

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
                245                 250                 255

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            260                 265                 270
```

```
Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        275                 280                 285

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
    290                 295                 300

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
305                 310                 315                 320

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                325                 330                 335

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
            340                 345                 350

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
    370                 375                 380

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
385                 390                 395                 400

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
                405                 410                 415

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            420                 425                 430

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
        435                 440                 445

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
                485                 490                 495
```

```
Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            500                 505                 510

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        515                 520                 525

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
    530                 535                 540

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
545                 550                 555                 560

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                565                 570                 575

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
            580                 585                 590

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        595                 600                 605

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
    610                 615                 620

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
625                 630                 635                 640

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
                645                 650                 655

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            660                 665                 670

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        675                 680                 685

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    690                 695                 700

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
705                 710                 715                 720
```

```
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
               725                 730                 735

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
            740                 745                 750

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        755                 760                 765

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
    770                 775                 780

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
785                 790                 795                 800

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
               805                 810                 815

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            820                 825                 830

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        835                 840                 845

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    850                 855                 860

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
865                 870                 875                 880

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
               885                 890                 895

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            900                 905                 910

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
        915                 920                 925

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
```

```
    930                 935                 940

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
945                 950                 955                 960

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
                965                 970                 975

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            980                 985                 990

Ser Ser Ser Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
        995                 1000                1005

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1010                1015                1020

Thr
```

<210> 119
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 119

```
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1               5                   10                  15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
            20                  25                  30

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        35                  40                  45

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
    50                  55                  60

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
65                  70                  75                  80
```

```
Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                85                  90                  95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            100                 105                 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
        115                 120                 125

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    130                 135                 140

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
145                 150                 155                 160

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
                165                 170                 175

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180                 185                 190

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
        195                 200                 205

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    210                 215                 220

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
225                 230                 235                 240

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
                245                 250                 255

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            260                 265                 270

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        275                 280                 285

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
```

```
    290                 295                 300

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
305                 310                 315                 320

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
            340                 345                 350

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
385                 390                 395                 400

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
                405                 410                 415

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            420                 425                 430

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        435                 440                 445

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    450                 455                 460

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
465                 470                 475                 480

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
                485                 490                 495

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            500                 505                 510
```

```
Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        515                 520                 525

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    530                 535                 540

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
545                 550                 555                 560

Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                565                 570                 575

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
            580                 585                 590

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
        595                 600                 605

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
    610                 615                 620

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
625                 630                 635                 640

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                645                 650                 655

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            660                 665                 670

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
        675                 680                 685

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
    690                 695                 700

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
705                 710                 715                 720

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
                725                 730                 735
```

```
Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            740                 745                 750

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        755                 760                 765

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    770                 775                 780

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
785                 790                 795                 800

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                805                 810                 815

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
            820                 825                 830

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        835                 840                 845

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
    850                 855                 860

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
865                 870                 875                 880

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                885                 890                 895

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            900                 905                 910

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
        915                 920                 925

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    930                 935                 940

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
945                 950                 955                 960
```

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
965 970 975

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
980 985 990

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
995 1000 1005

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
1010 1015 1020

Gly

<210> 120
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 120
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
35 40 45

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
50 55 60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
85 90 95

```
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
            100                 105                 110

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
        115                 120                 125

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
145                 150                 155                 160

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                165                 170                 175

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            180                 185                 190

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
        195                 200                 205

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    210                 215                 220

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
                245                 250                 255

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
            260                 265                 270

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        275                 280                 285

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
    290                 295                 300

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320
```

```
Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            340                 345                 350

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        355                 360                 365

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    370                 375                 380

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
385                 390                 395                 400

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                405                 410                 415

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            420                 425                 430

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
        435                 440                 445

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
    450                 455                 460

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
465                 470                 475                 480

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            500                 505                 510

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        515                 520                 525

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
```

```
    530                 535                 540

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
            580                 585                 590

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        595                 600                 605

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
625                 630                 635                 640

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                645                 650                 655

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            660                 665                 670

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        675                 680                 685

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    690                 695                 700

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
705                 710                 715                 720

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
                725                 730                 735

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            740                 745                 750
```

```
Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        755                 760                 765

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
    770                 775                 780

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
785                 790                 795                 800

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                805                 810                 815

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
            820                 825                 830

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        835                 840                 845

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    850                 855                 860

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
865                 870                 875                 880

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                885                 890                 895

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            900                 905                 910

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        915                 920                 925

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    930                 935                 940

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
945                 950                 955                 960

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
                965                 970                 975
```

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
980 985 990

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
995 1000 1005

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser
1010 1015 1020

Pro

<210> 121
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 121
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
35 40 45

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
50 55 60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
85 90 95

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
100 105 110

```
Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
145                 150                 155                 160

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
                165                 170                 175

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            180                 185                 190

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
        195                 200                 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
    210                 215                 220

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
225                 230                 235                 240

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
                245                 250                 255

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        275                 280                 285

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
    290                 295                 300

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
305                 310                 315                 320

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335
```

```
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
            340                 345                 350

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
        355                 360                 365

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    370                 375                 380

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
385                 390                 395                 400

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
                405                 410                 415

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
        435                 440                 445

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    450                 455                 460

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            500                 505                 510

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        515                 520                 525

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
    530                 535                 540

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
545                 550                 555                 560
```

```
Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
            580                 585                 590

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        595                 600                 605

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
625                 630                 635                 640

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
                645                 650                 655

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            660                 665                 670

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
        675                 680                 685

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    690                 695                 700

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
705                 710                 715                 720

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
                725                 730                 735

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            740                 745                 750

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        755                 760                 765

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
```

```
    770                 775                 780

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
785                 790                 795                 800

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                805                 810                 815

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
            820                 825                 830

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        835                 840                 845

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
    850                 855                 860

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
865                 870                 875                 880

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                885                 890                 895

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            900                 905                 910

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
        915                 920                 925

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    930                 935                 940

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
945                 950                 955                 960

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                965                 970                 975

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            980                 985                 990
```

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        995   1000   1005

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
    1010   1015   1020

Pro

<210> 122
<211> 1024
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 122
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
1   5   10   15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            20   25   30

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        35   40   45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
    50   55   60

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
65   70   75   80

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                85   90   95

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            100   105   110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115   120   125

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro

```
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
145                 150                 155                 160

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                165                 170                 175

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            180                 185                 190

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        195                 200                 205

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    210                 215                 220

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
225                 230                 235                 240

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
                245                 250                 255

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            260                 265                 270

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        275                 280                 285

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
    290                 295                 300

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
305                 310                 315                 320

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
            340                 345                 350
```

```
Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        355                 360                 365

Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
    370                 375                 380

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
385                 390                 395                 400

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                405                 410                 415

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            420                 425                 430

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
        435                 440                 445

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    450                 455                 460

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            500                 505                 510

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        515                 520                 525

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
    530                 535                 540

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575
```

```
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            580                 585                 590

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        595                 600                 605

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
    610                 615                 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
625                 630                 635                 640

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
                645                 650                 655

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            660                 665                 670

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
        675                 680                 685

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    690                 695                 700

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
705                 710                 715                 720

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
                725                 730                 735

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            740                 745                 750

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        755                 760                 765

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
    770                 775                 780

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
785                 790                 795                 800
```

```
Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                805                 810                 815

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
            820                 825                 830

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        835                 840                 845

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    850                 855                 860

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly
865                 870                 875                 880

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                885                 890                 895

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            900                 905                 910

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        915                 920                 925

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    930                 935                 940

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
945                 950                 955                 960

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                965                 970                 975

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            980                 985                 990

Ser Ser Ser Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
        995                 1000                1005

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser
```

1010 1015 1020

Pro

<210> 123
<211> 72
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 123
Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly
1 5 10 15

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
20 25 30

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
35 40 45

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
50 55 60

Thr Ser Gly Ser Glu Thr Pro Gly
65 70

<210> 124
<211> 72
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 124
Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
1 5 10 15

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
20 25 30

Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        35   40   45

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
    50   55   60

Pro Ser Glu Gly Ser Ala Pro Gly
65   70

<210> 125
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 125
Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
1   5   10   15

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
            20   25   30

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
        35   40   45

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
    50   55   60

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
65   70   75   80

Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                85   90   95

Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            100   105

<210> 126
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 126
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
50 55 60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
65 70 75 80

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
100 105

<210> 127
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 127
Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
1 5 10 15

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
20 25 30

Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
35 40 45

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
    50   55   60

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
65   70   75   80

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
                85   90   95

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala
            100   105   110

Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
        115   120   125

Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
    130   135   140

<210> 128
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 128
Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
1   5   10   15

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
            20   25   30

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        35   40   45

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
    50   55   60

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
65   70   75   80

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly

85 90 95

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
100 105 110

Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
115 120 125

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
130 135 140

<210> 129
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 129
Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
1 5 10 15

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
20 25 30

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
35 40 45

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
50 55 60

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
65 70 75 80

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
85 90 95

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
100 105 110

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu
115 120 125

```
Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
    130                 135                 140


Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
145                 150                 155                 160


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
                165                 170                 175


Pro Ala Thr Ser
            180
```

<210> 130
<211> 216
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 130

```
Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1               5                   10                  15


Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            20                  25                  30


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        35                  40                  45


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    50                  55                  60


Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
65                  70                  75                  80


Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
                85                  90                  95


Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
            100                 105                 110
```

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
        115   120   125

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
    130   135   140

Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
145   150   155   160

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
                165   170   175

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
            180   185   190

Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
        195   200   205

Pro Gly Thr Ser Glu Ser Ala Thr
    210   215

<210> 131
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 131
Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
1   5   10   15

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
            20   25   30

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
        35   40   45

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    50   55   60

```
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65                  70                  75                  80


Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
                85                  90                  95


Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            100                 105                 110


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
        115                 120                 125


Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
    130                 135                 140


Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
145                 150                 155                 160


Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
                165                 170                 175


Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
            180                 185                 190


Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        195                 200                 205


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    210                 215                 220


Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
225                 230                 235                 240


Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                245                 250


<210> 132
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
```

polypeptide

<400> 132
Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
1 5 10 15

Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
20 25 30

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
35 40 45

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
50 55 60

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
65 70 75 80

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
85 90 95

Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
100 105 110

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
115 120 125

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser
130 135 140

Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
145 150 155 160

Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
165 170 175

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala
180 185 190

Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
195 200 205

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser
210 215 220

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser
225 230 235 240

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
245 250 255

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
260 265 270

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
275 280 285

<210> 133
<211> 324
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 133
Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
1 5 10 15

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
20 25 30

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
35 40 45

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
50 55 60

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
65 70 75 80

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
85 90 95

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr

```
            100                 105                 110

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
        115                 120                 125

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
    130                 135                 140

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
145                 150                 155                 160

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
                165                 170                 175

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
            180                 185                 190

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
        195                 200                 205

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    210                 215                 220

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
225                 230                 235                 240

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                245                 250                 255

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu
            260                 265                 270

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
        275                 280                 285

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    290                 295                 300

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
305                 310                 315                 320
```

Pro Ala Thr Ser

<210> 134
<211> 360
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 134
Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1 5 10 15

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro
20 25 30

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
35 40 45

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
50 55 60

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
65 70 75 80

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
85 90 95

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
100 105 110

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
115 120 125

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
130 135 140

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
145 150 155 160

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser

```
                165                 170                 175

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
            180                 185                 190

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        195                 200                 205

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
    210                 215                 220

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
225                 230                 235                 240

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                245                 250                 255

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
            260                 265                 270

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        275                 280                 285

Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    290                 295                 300

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
305                 310                 315                 320

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                325                 330                 335

Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
            340                 345                 350

Pro Gly Thr Ser Glu Ser Ala Thr
        355                 360


<210> 135
<211> 360
<212> PRT
<213> Artificial Sequence
```

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 135
Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
1 5 10 15

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
20 25 30

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
35 40 45

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
50 55 60

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
65 70 75 80

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
85 90 95

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
100 105 110

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
115 120 125

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
130 135 140

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
145 150 155 160

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
165 170 175

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
180 185 190

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly

195 200 205

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
210 215 220

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
225 230 235 240

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
245 250 255

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
260 265 270

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
275 280 285

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
290 295 300

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu
305 310 315 320

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
325 330 335

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
340 345 350

Pro Gly Thr Ser Thr Glu Pro Ser
355 360

<210> 136
<211> 432
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 136
Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
1 5 10 15

```
Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            20                  25                  30

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        35                  40                  45

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    50                  55                  60

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
65                  70                  75                  80

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
                85                  90                  95

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
            100                 105                 110

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
        115                 120                 125

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
    130                 135                 140

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
145                 150                 155                 160

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
                165                 170                 175

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
            180                 185                 190

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        195                 200                 205

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
    210                 215                 220

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
```

225 230 235 240

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
245 250 255

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
260 265 270

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
275 280 285

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
290 295 300

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
305 310 315 320

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
325 330 335

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
340 345 350

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
355 360 365

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser
370 375 380

Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
385 390 395 400

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
405 410 415

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser
420 425 430

<210> 137
<211> 468
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 137
Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1 5 10 15

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
20 25 30

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
35 40 45

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
50 55 60

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
65 70 75 80

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
85 90 95

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
100 105 110

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
115 120 125

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
130 135 140

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
145 150 155 160

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
165 170 175

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
180 185 190

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly

```
        195                 200                 205

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
    210                 215                 220

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
225                 230                 235                 240

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                245                 250                 255

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
            260                 265                 270

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
        275                 280                 285

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    290                 295                 300

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro
305                 310                 315                 320

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
                325                 330                 335

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            340                 345                 350

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
        355                 360                 365

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    370                 375                 380

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
385                 390                 395                 400

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
                405                 410                 415
```

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
420 425 430

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
435 440 445

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
450 455 460

Glu Ser Ala Thr
465

<210> 138
<211> 504
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 138
Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1 5 10 15

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
20 25 30

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
35 40 45

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
50 55 60

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
65 70 75 80

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
85 90 95

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
100 105 110

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser

```
        115                 120                 125

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
    130                 135                 140

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
145                 150                 155                 160

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
                165                 170                 175

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
            180                 185                 190

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        195                 200                 205

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    210                 215                 220

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
225                 230                 235                 240

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                245                 250                 255

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
            260                 265                 270

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
        275                 280                 285

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
    290                 295                 300

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
305                 310                 315                 320

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
                325                 330                 335
```

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
340 345 350

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
355 360 365

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
370 375 380

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
385 390 395 400

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
405 410 415

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser
420 425 430

Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
435 440 445

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
450 455 460

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser
465 470 475 480

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
485 490 495

Pro Gly Thr Ser Thr Glu Pro Ser
500

<210> 139
<211> 540
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 139
Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr

```
1               5                   10                  15

Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
            20                  25                  30

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
        35                  40                  45

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
    50                  55                  60

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
65                  70                  75                  80

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro
                85                  90                  95

Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
            100                 105                 110

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
        115                 120                 125

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
    130                 135                 140

Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
145                 150                 155                 160

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
                165                 170                 175

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
            180                 185                 190

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
        195                 200                 205

Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
    210                 215                 220
```

```
Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser
225                 230                 235                 240


Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
                245                 250                 255


Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
            260                 265                 270


Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro
        275                 280                 285


Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
    290                 295                 300


Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
305                 310                 315                 320


Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
                325                 330                 335


Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
            340                 345                 350


Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
        355                 360                 365


Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala
    370                 375                 380


Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
385                 390                 395                 400


Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
                405                 410                 415


Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser
            420                 425                 430


Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
        435                 440                 445
```

```
Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
    450                 455                 460

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala
465                 470                 475                 480

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
                485                 490                 495

Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser
            500                 505                 510

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
        515                 520                 525

Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro
    530                 535                 540
```

<210> 140
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 140

```
Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
1               5                   10                  15

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
            20                  25                  30

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
        35                  40                  45

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
    50                  55                  60

Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
65                  70                  75                  80
```

```
Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro
                85                  90                  95

Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
            100                 105                 110

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
        115                 120                 125

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
    130                 135                 140

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
145                 150                 155                 160

Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
                165                 170                 175

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
            180                 185                 190

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
        195                 200                 205

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
    210                 215                 220

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala
225                 230                 235                 240

Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
                245                 250                 255

Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
            260                 265                 270

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala
        275                 280                 285

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
    290                 295                 300
```

```
Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
305                 310                 315                 320

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
                325                 330                 335

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
            340                 345                 350

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
        355                 360                 365

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
    370                 375                 380

Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
385                 390                 395                 400

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
                405                 410                 415

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser
            420                 425                 430

Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
        435                 440                 445

Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
    450                 455                 460

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala
465                 470                 475                 480

Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
                485                 490                 495

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser
            500                 505                 510

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser
        515                 520                 525
```

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
530 535 540

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
545 550 555 560

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
565 570 575

<210> 141
<211> 612
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 141
Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1 5 10 15

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
20 25 30

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
35 40 45

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
50 55 60

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
65 70 75 80

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
85 90 95

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
100 105 110

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
115 120 125

```
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
    130                 135                 140

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
145                 150                 155                 160

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                165                 170                 175

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            180                 185                 190

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        195                 200                 205

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
    210                 215                 220

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
225                 230                 235                 240

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                245                 250                 255

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            260                 265                 270

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
        275                 280                 285

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
    290                 295                 300

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
305                 310                 315                 320

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
                325                 330                 335

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
            340                 345                 350
```

```
Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
        355                 360                 365

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
    370                 375                 380

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
385                 390                 395                 400

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                405                 410                 415

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
            420                 425                 430

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
        435                 440                 445

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro
    450                 455                 460

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
465                 470                 475                 480

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                485                 490                 495

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
            500                 505                 510

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
        515                 520                 525

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    530                 535                 540

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
545                 550                 555                 560

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
```

565 570 575

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
580 585 590

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
595 600 605

Glu Ser Ala Thr
610

<210> 142
<211> 648
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 142
Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1 5 10 15

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
20 25 30

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser
35 40 45

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
50 55 60

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
65 70 75 80

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
85 90 95

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
100 105 110

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
115 120 125

```
Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
    130                 135                 140

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
145                 150                 155                 160

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
                165                 170                 175

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
            180                 185                 190

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        195                 200                 205

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
    210                 215                 220

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
225                 230                 235                 240

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                245                 250                 255

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
            260                 265                 270

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
        275                 280                 285

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    290                 295                 300

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro
305                 310                 315                 320

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
                325                 330                 335

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
```

```
            340                 345                 350

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
        355                 360                 365

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
    370                 375                 380

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
385                 390                 395                 400

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                405                 410                 415

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            420                 425                 430

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        435                 440                 445

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
    450                 455                 460

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
465                 470                 475                 480

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                485                 490                 495

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
            500                 505                 510

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
        515                 520                 525

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
545                 550                 555                 560
```

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
565 570 575

Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
580 585 590

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
595 600 605

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
610 615 620

Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
625 630 635 640

Pro Gly Thr Ser Glu Ser Ala Thr
645

<210> 143
<211> 684
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 143
Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
1 5 10 15

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
20 25 30

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
35 40 45

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
50 55 60

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
65 70 75 80

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser

```
                85                  90                  95

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            100                 105                 110

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
        115                 120                 125

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
    130                 135                 140

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
145                 150                 155                 160

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
                165                 170                 175

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
            180                 185                 190

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        195                 200                 205

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    210                 215                 220

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
225                 230                 235                 240

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                245                 250                 255

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            260                 265                 270

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        275                 280                 285

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    290                 295                 300
```

```
Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
305                 310                 315                 320

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
                325                 330                 335

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            340                 345                 350

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro
        355                 360                 365

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
    370                 375                 380

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
385                 390                 395                 400

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
                405                 410                 415

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            420                 425                 430

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
        435                 440                 445

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
    450                 455                 460

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
465                 470                 475                 480

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                485                 490                 495

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            500                 505                 510

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        515                 520                 525
```

```
Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
545                 550                 555                 560

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
                565                 570                 575

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
            580                 585                 590

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
        595                 600                 605

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
    610                 615                 620

Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
625                 630                 635                 640

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
                645                 650                 655

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
            660                 665                 670

Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser
        675                 680


<210> 144
<211> 720
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 144
Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
1               5                   10                  15
```

```
Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
            20                  25                  30

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
        35                  40                  45

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    50                  55                  60

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
65                  70                  75                  80

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
                85                  90                  95

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            100                 105                 110

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        115                 120                 125

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
    130                 135                 140

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
145                 150                 155                 160

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                165                 170                 175

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
            180                 185                 190

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
        195                 200                 205

Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    210                 215                 220

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
225                 230                 235                 240
```

```
Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                245                 250                 255

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            260                 265                 270

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        275                 280                 285

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    290                 295                 300

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
305                 310                 315                 320

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
                325                 330                 335

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            340                 345                 350

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        355                 360                 365

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
    370                 375                 380

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
385                 390                 395                 400

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                405                 410                 415

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
            420                 425                 430

Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
        435                 440                 445

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
    450                 455                 460
```

```
Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
465                 470                 475                 480


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
                485                 490                 495


Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
            500                 505                 510


Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
        515                 520                 525


Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    530                 535                 540


Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
545                 550                 555                 560


Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
                565                 570                 575


Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
            580                 585                 590


Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        595                 600                 605


Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly
    610                 615                 620


Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
625                 630                 635                 640


Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                645                 650                 655


Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
            660                 665                 670


Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
```

675 680 685

Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
690 695 700

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
705 710 715 720

<210> 145
<211> 756
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 145
Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
1 5 10 15

Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
20 25 30

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
35 40 45

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
50 55 60

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
65 70 75 80

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
85 90 95

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
100 105 110

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
115 120 125

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
130 135 140

```
Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
145                 150                 155                 160

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                165                 170                 175

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
            180                 185                 190

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
        195                 200                 205

Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    210                 215                 220

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
225                 230                 235                 240

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                245                 250                 255

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            260                 265                 270

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        275                 280                 285

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    290                 295                 300

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
305                 310                 315                 320

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
                325                 330                 335

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            340                 345                 350

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
```

```
        355                 360                 365

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
    370                 375                 380

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
385                 390                 395                 400

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                405                 410                 415

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
            420                 425                 430

Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
        435                 440                 445

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
    450                 455                 460

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
465                 470                 475                 480

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
                485                 490                 495

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
            500                 505                 510

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
        515                 520                 525

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    530                 535                 540

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
545                 550                 555                 560

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
                565                 570                 575
```

```
Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
            580                 585                 590

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        595                 600                 605

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly
    610                 615                 620

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
625                 630                 635                 640

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                645                 650                 655

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
            660                 665                 670

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
        675                 680                 685

Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    690                 695                 700

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
705                 710                 715                 720

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                725                 730                 735

Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
            740                 745                 750

Thr Ser Glu Ser
        755


<210> 146
<211> 792
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
```

polypeptide

<400> 146
Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
1   5   10   15

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu
            20   25   30

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
        35   40   45

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    50   55   60

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
65   70   75   80

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
                85   90   95

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            100   105   110

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        115   120   125

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
    130   135   140

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
145   150   155   160

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
                165   170   175

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
            180   185   190

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        195   200   205

```
Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro
    210                 215                 220

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
225                 230                 235                 240

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                245                 250                 255

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
            260                 265                 270

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        275                 280                 285

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    290                 295                 300

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
305                 310                 315                 320

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                325                 330                 335

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
            340                 345                 350

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        355                 360                 365

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
    370                 375                 380

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
385                 390                 395                 400

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
                405                 410                 415

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
            420                 425                 430
```

```
Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        435                 440                 445

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
    450                 455                 460

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
465                 470                 475                 480

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                485                 490                 495

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            500                 505                 510

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        515                 520                 525

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
545                 550                 555                 560

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
                565                 570                 575

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
            580                 585                 590

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
        595                 600                 605

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
    610                 615                 620

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
625                 630                 635                 640

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
                645                 650                 655
```

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            660   665   670

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        675   680   685

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
    690   695   700

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser
705   710   715   720

Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
                725   730   735

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            740   745   750

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser
        755   760   765

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    770   775   780

Pro Gly Thr Ser Thr Glu Pro Ser
785   790

<210> 147
<211> 828
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 147
Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1   5   10   15

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            20   25   30

```
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        35                  40                  45

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    50                  55                  60

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu
65                  70                  75                  80

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
                85                  90                  95

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
            100                 105                 110

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        115                 120                 125

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
    130                 135                 140

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
145                 150                 155                 160

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
                165                 170                 175

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
            180                 185                 190

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        195                 200                 205

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
    210                 215                 220

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
225                 230                 235                 240

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                245                 250                 255
```

```
Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro
            260                 265                 270

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
        275                 280                 285

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    290                 295                 300

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
305                 310                 315                 320

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                325                 330                 335

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            340                 345                 350

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        355                 360                 365

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
    370                 375                 380

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
385                 390                 395                 400

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
                405                 410                 415

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
            420                 425                 430

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        435                 440                 445

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
    450                 455                 460

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
```

```
465                 470                 475                 480

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                485                 490                 495

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
            500                 505                 510

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
        515                 520                 525

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
545                 550                 555                 560

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                565                 570                 575

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
            580                 585                 590

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
        595                 600                 605

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
    610                 615                 620

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
625                 630                 635                 640

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                645                 650                 655

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            660                 665                 670

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
        675                 680                 685
```

```
Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
    690                 695                 700

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
705                 710                 715                 720

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                725                 730                 735

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
            740                 745                 750

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser
        755                 760                 765

Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
    770                 775                 780

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
785                 790                 795                 800

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser
                805                 810                 815

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            820                 825


<210> 148
<211> 72
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 148
Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr
1               5                   10                  15

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
            20                  25                  30

Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
```

35 40 45

Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr
50 55 60

Pro Gly Ser Gly Thr Ala Ser Ser
65 70

<210> 149
<211> 72
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 149
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
35 40 45

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
50 55 60

Ser Gly Thr Ala Ser Ser Ser Pro
65 70

<210> 150
<211> 72
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 150
Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
1 5 10 15

Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
            20   25   30

Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
        35   40   45

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser
    50   55   60

Gly Ala Thr Gly Ser Pro Gly Ala
65   70

<210> 151
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 151
Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
1   5   10   15

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            20   25   30

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        35   40   45

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
    50   55   60

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
65   70   75   80

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
                85   90   95

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
            100   105

<210> 152

<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 152
Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
1 5 10 15

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
20 25 30

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
35 40 45

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
50 55 60

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
65 70 75 80

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
85 90 95

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
100 105

<210> 153
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 153
Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
1 5 10 15

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
20 25 30

```
Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
        35                  40                  45

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    50                  55                  60

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
65                  70                  75                  80

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                85                  90                  95

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser
            100                 105                 110

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        115                 120                 125

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    130                 135                 140
```

<210> 154
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 154

```
Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
1               5                   10                  15

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            20                  25                  30

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        35                  40                  45

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    50                  55                  60

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
```

65 70 75 80

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
85 90 95

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
100 105 110

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
115 120 125

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
130 135 140

<210> 155
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 155
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
1 5 10 15

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
20 25 30

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
35 40 45

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
100 105 110

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115   120   125

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
    130   135   140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145   150   155   160

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
                165   170   175

Thr Pro Gly Ser
            180

<210> 156
<211> 216
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 156
Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
1   5   10   15

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
            20   25   30

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
        35   40   45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    50   55   60

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
65   70   75   80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
                85   90   95

```
Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110


Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
        115                 120                 125


Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140


Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
145                 150                 155                 160


Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
                165                 170                 175


Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            180                 185                 190


Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        195                 200                 205


Pro Gly Ser Ser Thr Pro Ser Gly
    210                 215


<210> 157
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 157
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
1               5                   10                  15


Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
            20                  25                  30


Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
        35                  40                  45
```

```
Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50                  55                  60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            100                 105                 110

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
                165                 170                 175

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
            180                 185                 190

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
        195                 200                 205

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
    210                 215                 220

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
225                 230                 235                 240

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
                245                 250


<210> 158
<211> 288
<212> PRT
```

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 158
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
1 5 10 15

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
20 25 30

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
35 40 45

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
100 105 110

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
130 135 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145 150 155 160

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
165 170 175

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
180 185 190

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
195 200 205

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
210 215 220

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
225 230 235 240

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
245 250 255

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
260 265 270

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
275 280 285

<210> 159
<211> 324
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 159
Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
1 5 10 15

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
20 25 30

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
35 40 45

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
50 55 60

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
65 70 75 80

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser

```
                85                  90                  95

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            100                 105                 110

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        115                 120                 125

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
    130                 135                 140

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
145                 150                 155                 160

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
            180                 185                 190

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
        195                 200                 205

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
    210                 215                 220

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
225                 230                 235                 240

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                245                 250                 255

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
            260                 265                 270

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
        275                 280                 285

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    290                 295                 300
```

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
305 310 315 320

Ser Ser Thr Pro

<210> 160
<211> 360
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 160
Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
1 5 10 15

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
20 25 30

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
35 40 45

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
50 55 60

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
100 105 110

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
115 120 125

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
130 135 140

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr

```
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                165                 170                 175

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
            180                 185                 190

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
        195                 200                 205

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    210                 215                 220

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser
225                 230                 235                 240

Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                245                 250                 255

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            260                 265                 270

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
        275                 280                 285

Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
    290                 295                 300

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
305                 310                 315                 320

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
                325                 330                 335

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            340                 345                 350

Gly Ser Pro Gly Ala Ser Pro Gly
        355                 360
```

<210> 161
<211> 396
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 161
Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
1 5 10 15

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
20 25 30

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
35 40 45

Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
50 55 60

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
65 70 75 80

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
85 90 95

Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
100 105 110

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
115 120 125

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
130 135 140

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
145 150 155 160

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
165 170 175

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser

```
            180                 185                 190

Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
        195                 200                 205

Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
    210                 215                 220

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
225                 230                 235                 240

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
                245                 250                 255

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            260                 265                 270

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
        275                 280                 285

Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
    290                 295                 300

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
305                 310                 315                 320

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
                325                 330                 335

Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
            340                 345                 350

Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
        355                 360                 365

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser
    370                 375                 380

Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
385                 390                 395
```

<210> 162
<211> 432
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 162
Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
1 5 10 15

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr
20 25 30

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
35 40 45

Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
50 55 60

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
65 70 75 80

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
85 90 95

Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
100 105 110

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
115 120 125

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
130 135 140

Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
145 150 155 160

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr
165 170 175

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser

```
            180                 185                 190

Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
        195                 200                 205

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr
    210                 215                 220

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
225                 230                 235                 240

Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
                245                 250                 255

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            260                 265                 270

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
        275                 280                 285

Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
    290                 295                 300

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
305                 310                 315                 320

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala
                325                 330                 335

Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
            340                 345                 350

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser
        355                 360                 365

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
    370                 375                 380

Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
385                 390                 395                 400
```

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr
405 410 415

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
420 425 430

<210> 163
<211> 468
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 163
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
1 5 10 15

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
20 25 30

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
35 40 45

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
50 55 60

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
65 70 75 80

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
85 90 95

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
100 105 110

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
115 120 125

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
130 135 140

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly

```
145                 150                 155                 160

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
            180                 185                 190

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        195                 200                 205

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
    210                 215                 220

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
225                 230                 235                 240

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
                245                 250                 255

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
            260                 265                 270

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
        275                 280                 285

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
    290                 295                 300

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
305                 310                 315                 320

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
                325                 330                 335

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            340                 345                 350

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        355                 360                 365
```

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
370 375 380

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
385 390 395 400

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
405 410 415

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
420 425 430

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
435 440 445

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
450 455 460

Ala Ser Pro Gly
465

<210> 164
<211> 504
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 164
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
1 5 10 15

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
20 25 30

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
35 40 45

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
50 55 60

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly

```
65                  70                  75                  80

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
                85                  90                  95

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            100                 105                 110

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
    130                 135                 140

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
145                 150                 155                 160

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
            180                 185                 190

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        195                 200                 205

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
    210                 215                 220

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
225                 230                 235                 240

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
                245                 250                 255

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
            260                 265                 270

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
        275                 280                 285
```

```
Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
    290                 295                 300

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
305                 310                 315                 320

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
                325                 330                 335

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            340                 345                 350

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        355                 360                 365

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
    370                 375                 380

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
385                 390                 395                 400

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                405                 410                 415

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
            420                 425                 430

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
        435                 440                 445

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
    450                 455                 460

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser
465                 470                 475                 480

Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
                485                 490                 495

Ser Ser Pro Gly Ser Ser Thr Pro
            500
```

<210> 165
<211> 540
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 165
Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
1 5 10 15

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
20 25 30

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
35 40 45

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
50 55 60

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
100 105 110

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
115 120 125

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
130 135 140

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145 150 155 160

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
165 170 175

```
Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
            180                 185                 190

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
        195                 200                 205

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
    210                 215                 220

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
225                 230                 235                 240

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                245                 250                 255

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
            260                 265                 270

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser
        275                 280                 285

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
    290                 295                 300

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
305                 310                 315                 320

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
                325                 330                 335

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            340                 345                 350

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
        355                 360                 365

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
    370                 375                 380

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
385                 390                 395                 400
```

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
405 410 415

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
420 425 430

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
435 440 445

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
450 455 460

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
465 470 475 480

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
485 490 495

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
500 505 510

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
515 520 525

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
530 535 540

<210> 166
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 166
Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
1 5 10 15

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
20 25 30

```
Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
        35                  40                  45

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50                  55                  60

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
                85                  90                  95

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
            100                 105                 110

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
    130                 135                 140

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
145                 150                 155                 160

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
            180                 185                 190

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
        195                 200                 205

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
    210                 215                 220

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
225                 230                 235                 240

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                245                 250                 255
```

```
Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            260                 265                 270

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
        275                 280                 285

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
    290                 295                 300

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
305                 310                 315                 320

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
                325                 330                 335

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            340                 345                 350

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
        355                 360                 365

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
    370                 375                 380

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
385                 390                 395                 400

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
                405                 410                 415

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
            420                 425                 430

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
        435                 440                 445

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
    450                 455                 460

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
465                 470                 475                 480
```

```
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
                485                 490                 495


Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
            500                 505                 510


Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser
        515                 520                 525


Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
    530                 535                 540


Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
545                 550                 555                 560


Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
                565                 570                 575


<210> 167
<211> 612
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 167
Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1               5                   10                  15


Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser
            20                  25                  30


Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
        35                  40                  45


Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
    50                  55                  60


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
65                  70                  75                  80
```

```
Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly
                85                  90                  95

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
            100                 105                 110

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
        115                 120                 125

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    130                 135                 140

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
                165                 170                 175

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
            180                 185                 190

Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        195                 200                 205

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser
    210                 215                 220

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
225                 230                 235                 240

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
                245                 250                 255

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
            260                 265                 270

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        275                 280                 285

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    290                 295                 300
```

```
Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
305                 310                 315                 320

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
                325                 330                 335

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
            340                 345                 350

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
        355                 360                 365

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
    370                 375                 380

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
385                 390                 395                 400

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
                405                 410                 415

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
            420                 425                 430

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        435                 440                 445

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
    450                 455                 460

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
465                 470                 475                 480

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
                485                 490                 495

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
            500                 505                 510

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
```

515 520 525

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
530 535 540

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
545 550 555 560

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
565 570 575

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
580 585 590

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
595 600 605

Pro Gly Thr Ser
610

<210> 168
<211> 648
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 168
Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
1 5 10 15

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
20 25 30

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro
35 40 45

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
50 55 60

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

```
Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
                85                  90                  95

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            100                 105                 110

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    130                 135                 140

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
145                 150                 155                 160

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
            180                 185                 190

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        195                 200                 205

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    210                 215                 220

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
225                 230                 235                 240

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
                245                 250                 255

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
            260                 265                 270

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
        275                 280                 285

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
```

```
    290                 295                 300

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
305                 310                 315                 320

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
                325                 330                 335

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
            340                 345                 350

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        355                 360                 365

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    370                 375                 380

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
385                 390                 395                 400

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                405                 410                 415

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
            420                 425                 430

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
        435                 440                 445

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    450                 455                 460

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
465                 470                 475                 480

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
                485                 490                 495

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            500                 505                 510
```

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
515 520 525

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
530 535 540

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
545 550 555 560

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
565 570 575

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
580 585 590

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
595 600 605

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser
610 615 620

Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
625 630 635 640

Ser Ser Pro Gly Ser Ser Thr Pro
645

<210> 169
<211> 684
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 169
Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
1 5 10 15

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
20 25 30

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser

```
        35                  40                  45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
    50                  55                  60

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
                85                  90                  95

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
            100                 105                 110

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        115                 120                 125

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    130                 135                 140

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                165                 170                 175

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            180                 185                 190

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        195                 200                 205

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
    210                 215                 220

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
225                 230                 235                 240

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                245                 250                 255
```

```
Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
            260                 265                 270

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
        275                 280                 285

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
    290                 295                 300

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
305                 310                 315                 320

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
                325                 330                 335

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            340                 345                 350

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        355                 360                 365

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    370                 375                 380

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
385                 390                 395                 400

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
                405                 410                 415

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser
            420                 425                 430

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
        435                 440                 445

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
    450                 455                 460

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
465                 470                 475                 480
```

```
Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
                485                 490                 495

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
            500                 505                 510

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
        515                 520                 525

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
    530                 535                 540

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
545                 550                 555                 560

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
                565                 570                 575

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
            580                 585                 590

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
        595                 600                 605

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
    610                 615                 620

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
625                 630                 635                 640

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
                645                 650                 655

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
            660                 665                 670

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
        675                 680
```

<210> 170
<211> 720

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 170
Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
1 5 10 15

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
20 25 30

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
35 40 45

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
50 55 60

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
65 70 75 80

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
100 105 110

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
130 135 140

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
145 150 155 160

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
165 170 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
180 185 190

```
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
        195                 200                 205

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
    210                 215                 220

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
225                 230                 235                 240

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                245                 250                 255

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
            260                 265                 270

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
        275                 280                 285

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
    290                 295                 300

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
305                 310                 315                 320

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
                325                 330                 335

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            340                 345                 350

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        355                 360                 365

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
    370                 375                 380

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
385                 390                 395                 400

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
                405                 410                 415
```

```
Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
            420                 425                 430

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
        435                 440                 445

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    450                 455                 460

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
465                 470                 475                 480

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
                485                 490                 495

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
            500                 505                 510

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
        515                 520                 525

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    530                 535                 540

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
545                 550                 555                 560

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
                565                 570                 575

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            580                 585                 590

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
        595                 600                 605

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    610                 615                 620

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
```

625 630 635 640

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
645 650 655

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser
660 665 670

Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
675 680 685

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
690 695 700

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
705 710 715 720

<210> 171
<211> 756
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 171
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
1 5 10 15

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
20 25 30

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
35 40 45

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
85 90 95

```
Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            100                 105                 110

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
                165                 170                 175

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
            180                 185                 190

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
        195                 200                 205

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
    210                 215                 220

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
225                 230                 235                 240

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                245                 250                 255

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            260                 265                 270

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
        275                 280                 285

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
    290                 295                 300

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
```

```
305                 310                 315                 320

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser
                325                 330                 335

Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            340                 345                 350

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        355                 360                 365

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    370                 375                 380

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
385                 390                 395                 400

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                405                 410                 415

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
            420                 425                 430

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
        435                 440                 445

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    450                 455                 460

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
465                 470                 475                 480

Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                485                 490                 495

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            500                 505                 510

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
        515                 520                 525
```

```
Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
    530                 535                 540

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
545                 550                 555                 560

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
                565                 570                 575

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            580                 585                 590

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        595                 600                 605

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser
    610                 615                 620

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
625                 630                 635                 640

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                645                 650                 655

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser
            660                 665                 670

Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        675                 680                 685

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
    690                 695                 700

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
705                 710                 715                 720

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
                725                 730                 735

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            740                 745                 750
```

Ala Ser Pro Gly
        755

<210> 172
<211> 792
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 172
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
1   5   10   15

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
            20   25   30

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
        35   40   45

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50   55   60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65   70   75   80

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
                85   90   95

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            100   105   110

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115   120   125

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
    130   135   140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145   150   155   160

```
Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
                165                 170                 175

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
            180                 185                 190

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
        195                 200                 205

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
    210                 215                 220

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
225                 230                 235                 240

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                245                 250                 255

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            260                 265                 270

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
        275                 280                 285

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
    290                 295                 300

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
305                 310                 315                 320

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser
                325                 330                 335

Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            340                 345                 350

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        355                 360                 365

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    370                 375                 380
```

```
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
385                 390                 395                 400


Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                405                 410                 415


Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
            420                 425                 430


Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
        435                 440                 445


Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    450                 455                 460


Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
465                 470                 475                 480


Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                485                 490                 495


Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            500                 505                 510


Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
        515                 520                 525


Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
    530                 535                 540


Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
545                 550                 555                 560


Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
                565                 570                 575


Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            580                 585                 590


Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        595                 600                 605
```

```
Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser
    610                 615                 620

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
625                 630                 635                 640

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                645                 650                 655

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser
            660                 665                 670

Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        675                 680                 685

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
    690                 695                 700

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
705                 710                 715                 720

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
                725                 730                 735

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            740                 745                 750

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
        755                 760                 765

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    770                 775                 780

Thr Gly Pro Gly Ala Ser Pro Gly
785                 790
```

<210> 173
<211> 828
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 173
Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
1 5 10 15

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
20 25 30

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
35 40 45

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
100 105 110

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
130 135 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145 150 155 160

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
165 170 175

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
180 185 190

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
195 200 205

```
Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
    210                 215                 220

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
225                 230                 235                 240

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                245                 250                 255

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            260                 265                 270

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
        275                 280                 285

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
    290                 295                 300

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
305                 310                 315                 320

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser
                325                 330                 335

Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            340                 345                 350

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        355                 360                 365

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    370                 375                 380

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
385                 390                 395                 400

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                405                 410                 415

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
```

```
            420                 425                 430

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
        435                 440                 445

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    450                 455                 460

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
465                 470                 475                 480

Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                485                 490                 495

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            500                 505                 510

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
        515                 520                 525

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
    530                 535                 540

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
545                 550                 555                 560

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
                565                 570                 575

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            580                 585                 590

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        595                 600                 605

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser
    610                 615                 620

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
625                 630                 635                 640
```

```
Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                645                 650                 655

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser
            660                 665                 670

Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        675                 680                 685

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
    690                 695                 700

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
705                 710                 715                 720

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
                725                 730                 735

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            740                 745                 750

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
        755                 760                 765

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    770                 775                 780

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
785                 790                 795                 800

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
                805                 810                 815

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
            820                 825
```

<210> 174
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

peptide

<400> 174
Gly Ser Pro Gly
1

<210> 175
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 175
Glu Thr Glu Thr
1

<210> 176
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 176
Pro Gly Ser Ser Ser
1 5

<210> 177
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 177
Gly Pro Ser Gly Pro
1 5

<210> 178
<211> 10
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 178
Gly Ala Gly Ser Pro Gly Ala Glu Thr Ala
1 5 10

<210> 179
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 179
Lys Leu Thr Arg Ala Glu Thr
1 5

<210> 180
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 180
Asp Phe Thr Arg Val Val Gly
1 5

<210> 181
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 181
Thr Met Thr Arg Ile Val Gly Gly
1 5

<210> 182
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 182
Ser Pro Phe Arg Ser Thr Gly Gly
1 5

<210> 183
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 183
Leu Gln Val Arg Ile Val Gly Gly
1 5

<210> 184
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 184
Pro Leu Gly Arg Ile Val Gly Gly
1 5

<210> 185
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 185
Ile Glu Gly Arg Thr Val Gly Gly
1 5

<210> 186
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 186
Leu Thr Pro Arg Ser Leu Leu Val
1 5

<210> 187
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 187
Leu Gly Pro Val Ser Gly Val Pro
1 5

<210> 188
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 188
Val Ala Gly Asp Ser Leu Glu Glu
1 5

<210> 189
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 189
Gly Pro Ala Gly Leu Gly Gly Ala
1 5

<210> 190
<211> 8
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<220>
<221> MOD_RES
<222> (2)..(2)
<223> Pro or Ala

<220>
<221> MOD_RES
<222> (3)..(3)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (6)..(6)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (8)..(8)
<223> Any amino acid

<400> 190
Gly Xaa Xaa Gly Leu Xaa Gly Xaa
1 5

<210> 191
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 191
Gly Pro Ala Gly Leu Arg Gly Ala
1 5

<210> 192
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<220>
<221> MOD_RES
<222> (3)..(3)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (6)..(6)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (7)..(7)
<223> Gly or Ala

<220>
<221> MOD_RES
<222> (8)..(8)
<223> Any amino acid

<400> 192
Gly Pro Xaa Gly Leu Xaa Xaa Xaa
1   5

<210> 193
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 193
Ala Pro Leu Gly Leu Arg Leu Arg
1   5

<210> 194
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 194
Pro Ala Leu Pro Leu Val Ala Gln
1   5

<210> 195

<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 195
Glu Asn Leu Tyr Phe Gln Gly
1 5

<210> 196
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 196
Glu Asn Leu Tyr Phe Gln Gly Ser
1 5

<210> 197
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 197
Asp Asp Asp Lys Ile Val Gly Gly
1 5

<210> 198
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 198
Asp Asp Asp Lys Ile Val Gly Gly
1 5

<210> 199
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 199
Leu Glu Val Leu Phe Gln Gly Pro
1 5

<210> 200
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 200
Leu Glu Val Leu Phe Gln Gly Pro
1 5

<210> 201
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 201
Leu Pro Lys Thr Gly Ser Glu Ser
1 5

<210> 202
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<220>
<221> MOD_RES
<222> (3)..(3)

<223> Lys, Glu, Ala or Asp

<220>
<221> MOD_RES
<222> (6)..(6)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (7)..(7)
<223> Glu, Lys or Ser

<400> 202
Leu Pro Xaa Thr Gly Xaa Xaa Ser
1   5

<210> 203
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 203
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
1   5   10   15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
            20   25   30

Gly Ser Glu Ser
        35

<210> 204
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 204
ggttctggtg gcgaaccgtc cgagtctggt agctcaggtg aatctccggg tggctctagc   60

ggttccgagt caggtgaatc tcctggtggt tccagcggtt ccgagtca   108

<210> 205

<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 205
Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Glu Ser Pro
1 5 10 15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser
20 25 30

Glu Gly Gly Pro
35

<210> 206
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 206
ggtagcgaag gttcttctgg tcctggcgag tcttcaggtg aatctcctgg tggttccagc 60

ggttctgaat caggttcctc cgaaagcggt tcttccgagg gcggtcca 108

<210> 207
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 207
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
1 5 10 15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro Gly Gly Ser Ser
20 25 30

Gly Ser Glu Ser

35

<210> 208
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 208
ggttcctctg aaagcggttc ttccgaaggt ggtccaggtt cctctgaaag cggttcttct 60

gagggtggtc caggtgaatc tccgggtggc tccagcggtt ccgagtca 108

<210> 209
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 209
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu
1 5 10 15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
20 25 30

Ser Gly Ser Ser
35

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

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 210
ggttccggtg gcgaaccgtc tgaatctggt agctcaggtt cttctgaaag cggttcttcc 60

gagggtggtc caggttctgg tggtgaacct tccgagtctg gtagctca 108

<210> 211
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 211
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Glu Gly
1 5 10 15

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
20 25 30

Gly Glu Ser Ser
35

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

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 212
ggttcttccg aaagcggttc ttctgagggt ggtccaggta gcgaaggttc ttccggtcca 60

ggtgagtctt caggtagcga aggttcttct ggtcctggtg aatcttca 108

<210> 213
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 213
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro
1 5 10 15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Glu Gly Ser Ser Gly Pro
20 25 30

Gly Glu Ser Ser
35

<210> 214
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 214
ggttcctctg aaagcggttc ttccgagggt ggtccaggtg aatctccagg tggttccagc 60

ggttctgagt caggtagcga aggttcttct ggtccaggtg aatcctca 108

<210> 215
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 215
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly
1 5 10 15

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
20 25 30

Gly Glu Ser Ser
35

<210> 216
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 216
ggttctggtg gtgaaccgtc tgagtctggt agctcaggtt ccggtggcga accatccgaa 60

tctggtagct caggtagcga aggttcttcc ggtccaggtg agtcttca 108

<210> 217
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 217
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Glu Gly
1 5 10 15

Ser Ser Gly Pro Gly Glu Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser
20 25 30

Gly Ser Glu Ser
35

<210> 218
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 218
ggttcttccg aaagcggttc ttccgaaggc ggtccaggta gcgaaggttc ttctggtcca 60

ggcgaatctt caggtgaatc tcctggtggc tccagcggtt ctgagtca 108

<210> 219
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 219
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
1 5 10 15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser
20 25 30

Glu Gly Gly Pro
35

<210> 220
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 220
ggttcctccg aaagcggttc ttctgagggc ggtccaggtt cctccgaaag cggttcttcc 60

gagggcggtc caggttcttc tgaaagcggt tcttccgagg gcggtcca 108

<210> 221
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 221
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
1 5 10 15

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
20 25 30

Glu Gly Gly Pro
35

<210> 222
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 222
ggttccggtg gcgaaccgtc cgaatctggt agctcaggta gcgaaggttc ttctggtcca 60

ggcgaatctt caggttcctc tgaaagcggt tcttctgagg gcggtcca 108

<210> 223
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 223
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu
1 5 10 15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
20 25 30

Ser Gly Ser Ser
35

<210> 224
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 224
ggttctggtg gtgaaccgtc cgaatctggt agctcaggtt cttccgaaag cggttcttct 60

gaaggtggtc caggttccgg tggcgaacct tctgaatctg gtagctca 108

<210> 225
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 225
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu
1 5 10 15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro Gly Gly Ser Ser
20 25 30

Gly Ser Glu Ser
35

<210> 226
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 226
ggttctggtg gcgaaccgtc cgaatctggt agctcaggtt cctccgaaag cggttcttct 60

gaaggtggtc caggtgaatc tccaggtggt tctagcggtt ctgaatca 108

<210> 227
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 227
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
1 5 10 15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Glu Gly Ser Ser Gly Pro
20 25 30

Gly Glu Ser Ser
35

<210> 228
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 228
ggttctggtg gcgaaccgtc tgagtctggt agctcaggtg aatctcctgg tggctccagc 60

ggttctgaat caggtagcga aggttcttct ggtcctggtg aatcttca 108

<210> 229
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 229
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
1 5 10 15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu
20 25 30

Ser Gly Ser Ser
35

<210> 230
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 230
ggttccggtg gcgaaccttc cgaatctggt agctcaggtg aatctccggg tggttctagc 60

ggttctgagt caggttctgg tggtgaacct tccgagtctg gtagctca 108

<210> 231
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 231
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
1 5 10 15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser

20 25 30

Glu Gly Gly Pro
35

<210> 232
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 232
ggttcctctg aaagcggttc ttctgagggc ggtccaggtt cttccgaaag cggttcttcc 60

gagggcggtc caggttcttc cgaaagcggt tcttctgaag gcggtcca 108

<210> 233
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 233
Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Glu Gly
1 5 10 15

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
20 25 30

Gly Glu Ser Ser
35

<210> 234
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 234
ggtgaatctc cgggtggctc cagcggttct gagtcaggta gcgaaggttc ttccggtccg 60

ggtgagtcct caggtagcga aggttcttcc ggtcctggtg agtcttca 108

<210> 235
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 235
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly
1 5 10 15

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
20 25 30

Glu Gly Gly Pro
35

<210> 236
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 236
ggttctggtg gcgaaccttc cgaatctggt agctcaggtt ccggtggtga accttctgaa 60

tctggtagct caggttcttc tgaaagcggt tcttccgagg gcggtcca 108

<210> 237
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 237
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly
1 5 10 15

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
            20   25   30

Ser Gly Ser Ser
        35

<210> 238
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 238
ggttccggtg gtgaaccttc tgaatctggt agctcaggtt ccggtggcga accatccgag   60

tctggtagct caggttccgg tggtgaacca tccgagtctg gtagctca   108

<210> 239
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 239
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu
1   5   10   15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Glu Gly Ser Ser Gly Pro
            20   25   30

Gly Glu Ser Ser
        35

<210> 240
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 240

ggttccggtg gcgaaccttc tgaatctggt agctcaggtt cctccgaaag cggttcttct 60

gagggcggtc caggtagcga aggttcttct ggtccgggcg agtcttca 108

<210> 241
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 241
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
1 5 10 15

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
20 25 30

Ser Gly Ser Ser
35

<210> 242
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 242
ggttccggtg gtgaaccgtc cgagtctggt agctcaggta gcgaaggttc ttctggtccg 60

ggtgagtctt caggttctgg tggcgaaccg tccgaatctg gtagctca 108

<210> 243
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 243
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
1 5 10 15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu
            20   25   30

Ser Gly Ser Ser
        35

<210> 244
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 244
ggttctggtg gcgaaccgtc cgaatctggt agctcaggtg aatctcctgg tggttccagc 60

ggttccgagt caggttctgg tggcgaacct tccgaatctg gtagctca   108

<210> 245
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 245
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly
1   5   10   15

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
            20   25   30

Glu Gly Gly Pro
        35

<210> 246
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 246
ggttcttccg aaagcggttc ttccgagggc ggtccaggtt ccggtggtga accatctgaa 60

tctggtagct caggttcttc tgaaagcggt tcttctgaag gtggtcca 108

<210> 247
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 247
Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Glu Ser Pro
1 5 10 15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Glu Gly Ser Ser Gly Pro
20 25 30

Gly Glu Ser Ser
35

<210> 248
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 248
ggtagcgaag gttcttccgg tcctggtgag tcttcaggtg aatctccagg tggctctagc 60

ggttccgagt caggtagcga aggttcttct ggtcctggcg agtcctca 108

<210> 249
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 249
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
1 5 10 15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser
            20   25   30

Glu Gly Gly Pro
        35

<210> 250
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 250
ggttcctctg aaagcggttc ttccgaaggc ggtccaggtt cttccgaaag cggttcttct 60

gagggcggtc caggttcctc cgaaagcggt tcttctgagg gtggtcca   108

<210> 251
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 251
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
1   5   10   15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
            20   25   30

Gly Ser Glu Ser
        35

<210> 252
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 252
ggttctggtg gcgaaccttc cgagtctggt agctcaggtg aatctccggg tggttctagc 60

ggttccgagt caggtgaatc tccgggtggt tccagcggtt ctgagtca 108

<210> 253
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 253
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
1 5 10 15

Ser Ser Gly Pro Gly Glu Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser
20 25 30

Gly Ser Glu Ser
35

<210> 254
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 254
ggttctggtg gcgaaccatc tgagtctggt agctcaggta gcgaaggttc ttccggtcca 60

ggcgagtctt caggtgaatc tcctggtggc tccagcggtt ctgagtca 108

<210> 255
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 255
Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro

1 5 10 15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
20 25 30

Gly Ser Glu Ser
35

<210> 256
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 256
ggtgaatctc ctggtggttc cagcggttcc gagtcaggtg aatctccagg tggctctagc 60

ggttccgagt caggtgaatc tcctggtggt tctagcggtt ctgaatca 108

<210> 257
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 257
Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Glu Gly
1 5 10 15

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
20 25 30

Ser Gly Ser Ser
35

<210> 258
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polynucleotide

<400> 258
ggtagcgaag gttcttccgg tccaggtgaa tcttcaggta gcgaaggttc ttctggtcct 60

ggtgaatcct caggttccgg tggcgaacca tctgaatctg gtagctca 108

<210> 259
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 259
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
1 5 10 15

Ser Ser Gly Pro Gly Glu Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser
20 25 30

Gly Ser Glu Ser
35

<210> 260
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 260
ggttctggtg gcgaaccatc cgaatctggt agctcaggta gcgaaggttc ttctggtcct 60

ggcgaatctt caggtgaatc tccaggtggc tctagcggtt ccgaatca 108

<210> 261
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 261

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu
1   5   10   15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
            20   25   30

Ser Gly Ser Ser
        35

<210> 262
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 262
ggttccggtg gtgaaccgtc cgaatctggt agctcaggtt cctctgaaag cggttcttcc 60

gagggtggtc caggttccgg tggtgaacct tctgagtctg gtagctca   108

<210> 263
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 263
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly
1   5   10   15

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
            20   25   30

Gly Glu Ser Ser
        35

<210> 264
<211> 108
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 264
ggttcctctg aaagcggttc ttctgagggc ggtccaggtt ctggtggcga accatctgaa 60

tctggtagct caggtagcga aggttcttcc ggtccgggtg aatcttca 108

<210> 265
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 265
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
1 5 10 15

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
20 25 30

Gly Glu Ser Ser
35

<210> 266
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 266
ggttctggtg gtgaaccgtc cgaatctggt agctcaggta gcgaaggttc ttctggtcct 60

ggcgagtctt caggtagcga aggttcttct ggtcctggtg aatcttca 108

<210> 267
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 267
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu
1   5   10   15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
            20   25   30

Ser Gly Ser Ser
        35

<210> 268
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 268
ggttctggtg gcgaaccatc cgagtctggt agctcaggtt cttccgaaag cggttcttcc 60

gaaggcggtc caggttctgg tggtgaaccg tccgaatctg gtagctca   108

<210> 269
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 269
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
1   5   10   15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
            20   25   30

Gly Ser Glu Ser
        35

<210> 270
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 270
ggttccggtg gcgaaccttc cgaatctggt agctcaggtg aatctccggg tggttctagc 60

ggttccgaat caggtgaatc tccaggtggt tctagcggtt ccgaatca 108

<210> 271
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 271
Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly
1 5 10 15

Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser
20 25 30

Gly Ser Glu Ser
35

<210> 272
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 272
ggttccggtg gtgaaccatc tgagtctggt agctcaggtt ccggtggcga accgtccgag 60

tctggtagct caggtgaatc tccgggtggt tccagcggtt ccgaatca 108

<210> 273
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 273
Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu
1   5   10   15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Glu Gly Ser Ser Gly Pro
            20   25   30

Gly Glu Ser Ser
        35

<210> 274
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 274
ggtagcgaag gttcttctgg tccgggcgaa tcctcaggtt cctccgaaag cggttcttcc 60

gaaggtggtc caggtagcga aggttcttcc ggtcctggtg aatcttca   108

<210> 275
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 275
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro
1   5   10   15

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
            20   25   30

Gly Ser Glu Ser
        35

<210> 276
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 276
ggttcctctg aaagcggttc ttctgaaggc ggtccaggtg aatctccggg tggctccagc 60

ggttctgaat caggtgaatc tcctggtggc tccagcggtt ccgagtca 108

<210> 277
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 277
Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Glu Gly
1 5 10 15

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
20 25 30

Ser Gly Ser Ser
35

<210> 278
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 278
ggtagcgaag gttcttctgg tccaggcgag tcttcaggta gcgaaggttc ttccggtcct 60

ggcgagtctt caggttccgg tggcgaaccg tccgaatctg gtagctca 108

<210> 279
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<400> 279
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 280
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 280
ggtagcccgg caggctctcc gacctctact gaggaaggta cttctgaaag cgcaaccccg 60

gagtccggcc caggtacctc taccgaaccg tctgagggca gcgcacca 108

<210> 281
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 281
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 282
<211> 108
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 282
ggtacttcta ccgaaccgtc cgaaggcagc gctccaggta cctctactga accttccgag 60

ggcagcgctc caggtacctc taccgaacct tctgaaggta gcgcacca 108

<210> 283
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 283
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro
35

<210> 284
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 284
ggtacctcta ccgaaccgtc tgaaggtagc gcaccaggta cctctgaaag cgcaactcct 60

gagtccggtc caggtacttc tgaaagcgca accccggagt ctggccca 108

<210> 285
<211> 36
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 285
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro
35

<210> 286
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 286
ggtacttcta ctgaaccgtc tgaaggtagc gcaccaggta cttctgaaag cgcaaccccg 60

gaatccggcc caggtacctc tgaaagcgca accccggagt ccggccca 108

<210> 287
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 287
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
20 25 30

Ser Thr Glu Glu
35

<210> 288
<211> 108

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 288
ggtagcgaac cggcaacctc cggctctgaa accccaggta cctctgaaag cgctactcct 60

gaatccggcc caggtagccc ggcaggttct ccgacttcca ctgaggaa 108

<210> 289
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 289
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 290
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 290
ggtacttctg aaagcgcaac ccctgaatcc ggtccaggta gcgaaccggc tacttctggc 60

tctgagactc caggtacttc taccgaaccg tccgaaggta gcgcacca 108

<210> 291
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 291
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
1 5 10 15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro
35

<210> 292
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 292
ggtagcccgg ctggctctcc aacctccact gaggaaggta gcccggctgg ctctccaacc 60

tccactgaag aaggtagcga accggctacc tccggctctg aaactcca 108

<210> 293
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 293
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 294

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

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 294
ggtagcccgg ctggctctcc tacctctact gaggaaggta cttctgaaag cgctactcct 60

gagtctggtc caggtacctc tactgaaccg tccgaaggta gcgctcca 108

<210> 295
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 295
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
1 5 10 15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 296
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 296
ggtagccctg ctggctctcc gacttctact gaggaaggta gcccggctgg ttctccgact 60

tctactgagg aaggtacttc taccgaacct tccgaaggta gcgctcca 108

<210> 297
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 297
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 298
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 298
ggtacttctg aaagcgctac tccggagtcc ggtccaggta cctctaccga accgtccgaa 60

ggcagcgctc caggtacttc tactgaacct tctgagggta gcgctcca 108

<210> 299
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 299
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
1 5 10 15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 300
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 300
ggtacctcta ccgaaccttc cgaaggtagc gctccaggta gcccggcagg ttctcctact 60

tccactgagg aaggtacttc taccgaacct tctgagggta gcgcacca 108

<210> 301
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 301
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
1 5 10 15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro
35

<210> 302
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 302
ggtagcgaac cggctacttc cggctctgag actccaggta gccctgctgg ctctccgacc 60

tctaccgaag aaggtacctc tgaaagcgct acccctgagt ctggccca 108

<210> 303
<211> 36
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 303
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro
35

<210> 304
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 304
ggtacttcta ccgaaccttc cgagggcagc gcaccaggta cttctgaaag cgctacccct 60

gagtccggcc caggtacttc tgaaagcgct actcctgaat ccggtcca 108

<210> 305
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 305
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
20 25 30

Ser Thr Glu Glu
35

<210> 306
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 306
ggtacttcta ctgaaccgtc tgaaggcagc gcaccaggta gcgaaccggc tacttccggt 60

tctgaaaccc caggtagccc agcaggttct ccaacttcta ctgaagaa 108

<210> 307
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 307
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro
35

<210> 308
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 308
ggtagccctg ctggctctcc aacctccacc gaagaaggta cctctgaaag cgcaacccct 60

gaatccggcc caggtagcga accggcaacc tccggttctg aaacccca 108

<210> 309
<211> 36

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 309
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
1 5 10 15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
20 25 30

Ser Thr Glu Glu
35

<210> 310
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 310
ggtacttctg aaagcgctac tcctgagtcc ggcccaggta gcccggctgg ctctccgact 60

tccaccgagg aaggtagccc ggctggctct ccaacttcta ctgaagaa 108

<210> 311
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 311
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 312
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 312
ggtacctcta ctgaaccttc tgagggcagc gctccaggta cttctgaaag cgctaccccg 60

gagtccggtc caggtacttc tactgaaccg tccgaaggta gcgcacca 108

<210> 313
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 313
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro
35

<210> 314
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 314
ggtagcccgg caggctctcc gacttccacc gaggaaggta cctctactga accttctgag 60

ggtagcgctc caggtagcga accggcaacc tctggctctg aaacccca 108

<210> 315

<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 315
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 316
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 316
ggtagcccag caggctctcc gacttccact gaggaaggta cttctactga accttccgaa 60

ggcagcgcac caggtacctc tactgaacct tctgagggca gcgctcca 108

<210> 317
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 317
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
20 25 30

Ser Thr Glu Glu

35

<210> 318
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 318
ggtagcgaac ctgctacctc cggttctgaa accccaggta cctctgaaag cgcaactccg 60

gagtctggtc caggtagccc tgcaggttct cctacctcca ctgaggaa 108

<210> 319
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 319
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 320
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 320
ggtacctctg aaagcgctac tccggagtct ggcccaggta cctctactga accgtctgag 60

ggtagcgctc caggtacttc tactgaaccg tccgaaggta gcgcacca 108

<210> 321
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 321
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 322
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 322
ggtagcccgg ctggttctcc gacttccacc gaggaaggta cctctactga accttctgag 60

ggtagcgctc caggtacctc tactgaacct tccgaaggca gcgctcca 108

<210> 323
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 323
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 324
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 324
ggtacttcta ccgaaccgtc cgagggcagc gctccaggta cttctactga accttctgaa 60

ggcagcgctc caggtacttc tactgaacct tccgaaggta gcgcacca 108

<210> 325
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 325
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 326
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 326
ggtagcgaac ctgcaacctc tggctctgaa accccaggta cctctgaaag cgctactcct 60

gaatctggcc caggtacttc tactgaaccg tccgagggca gcgcacca 108

<210> 327
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 327
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
1 5 10 15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 328
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 328
ggtacttcta ccgaaccgtc cgagggtagc gcaccaggta gcccagcagg ttctcctacc 60

tccaccgagg aaggtacttc taccgaaccg tccgagggta gcgcacca 108

<210> 329
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 329
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro
35

<210> 330
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 330
ggtagcgaac cggcaacctc cggctctgaa actccaggta cttctgaaag cgctactccg 60

gaatccggcc caggtagcga accggctact tccggctctg aaacccca 108

<210> 331
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 331
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro
35

<210> 332
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 332
ggtagcgaac cggcaacttc cggctctgaa accccaggta cttctgaaag cgctactcct 60

gagtctggcc caggtagcga acctgctacc tctggctctg aaacccca 108

<210> 333
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 333
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 334
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 334
ggtagcgaac cggcaacctc tggctctgaa actccaggta gcgaacctgc aacctccggc 60

tctgaaaccc caggtacttc tactgaacct tctgagggca gcgcacca 108

<210> 335
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 335
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro
        35

<210> 336
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 336
ggtacttctg aaagcgctac cccggaatct ggcccaggta gcgaaccggc tacttctggt 60

tctgaaaccc caggtagcga accggctacc tccggttctg aaactcca 108

<210> 337
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 337
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1   5   10   15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            20   25   30

Glu Ser Gly Pro
        35

<210> 338
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 338
ggtacctcta ctgaaccttc cgaaggcagc gctccaggta cctctaccga accgtccgag 60

ggcagcgcac caggtacttc tgaaagcgca acccctgaat ccggtcca 108

<210> 339
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 339
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro
35

<210> 340
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 340
ggtagcgaac cggcaacctc tggctctgaa accccaggta cctctgaaag cgctactccg 60

gaatctggtc caggtacttc tgaaagcgct actccggaat ccggtcca 108

<210> 341
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 341
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu

20 25 30

Gly Ser Ala Pro
35

<210> 342
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 342
ggtagcgaac ctgctacctc cggctctgaa actccaggta gcgaaccggc tacttccggt 60

tctgaaactc caggtacctc taccgaacct tccgaaggca gcgcacca 108

<210> 343
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 343
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro
35

<210> 344
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 344
ggtagcgaac ctgctacttc tggttctgaa actccaggta cttctaccga accgtccgag 60

ggtagcgctc caggtagcga acctgctact tctggttctg aaactcca 108

<210> 345
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 345
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro
35

<210> 346
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 346
ggtacctcta ccgaaccgtc cgagggtagc gcaccaggta cctctactga accgtctgag 60

ggtagcgctc caggtagcga accggcaacc tccggttctg aaactcca 108

<210> 347
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 347
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
            20   25   30

Ser Thr Glu Glu
        35

<210> 348
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 348
ggtacttcta ctgaaccttc cgaaggtagc gctccaggta gcgaacctgc tacttctggt 60

tctgaaaccc caggtagccc ggctggctct ccgacctcca ccgaggaa   108

<210> 349
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 349
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
1   5   10   15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            20   25   30

Glu Ser Gly Pro
        35

<210> 350
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 350

ggtagcgaac cggctacttc cggctctgag actccaggta gcccagctgg ttctccaacc 60

tctactgagg aaggtacttc tgaaagcgct acccctgaat ctggtcca 108

<210> 351
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 351
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro
35

<210> 352
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 352
ggtacctctg aaagcgcaac tcctgagtct ggcccaggta gcgaacctgc tacctccggc 60

tctgagactc caggtacctc tgaaagcgca accccggaat ctggtcca 108

<210> 353
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 353
Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
            20   25   30

Ser Thr Ala Pro
        35

<210> 354
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 354
ggtacttcta ctccggaaag cggttccgca tctccaggta cttctcctag cggtgaatct 60

tctactgctc caggtacctc tcctagcggc gaatcttcta ctgctcca   108

<210> 355
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 355
Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
1   5   10   15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
            20   25   30

Ser Thr Ala Pro
        35

<210> 356
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 356
ggtacttctc cgagcggtga atcttctacc gcaccaggtt ctactagctc taccgctgaa 60

tctccgggcc caggtacttc tccgagcggt gaatcttcta ctgctcca 108

<210> 357
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 357
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly
20 25 30

Ser Ala Ser Pro
35

<210> 358
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 358
ggttccacca gctctactgc tgaatctcct ggtccaggta cctctcctag cggtgaatct 60

tctactgctc caggtacttc tactcctgaa agcggctctg cttctcca 108

<210> 359
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 359
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
            20   25   30

Ser Thr Ala Pro
        35

<210> 360
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 360
ggttctacca gctctactgc agaatctcct ggcccaggtt ccaccagctc taccgcagaa   60

tctccgggtc caggtacttc ccctagcggt gaatcttcta ccgcacca   108

<210> 361
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 361
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
1   5   10   15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly
            20   25   30

Ser Ala Ser Pro
        35

<210> 362
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 362
ggttctacta gctctactgc tgaatctcct ggcccaggta cttctcctag cggtgaatct 60

tctaccgctc caggtacctc tactccggaa agcggttctg catctcca 108

<210> 363
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 363
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr
1 5 10 15

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro
35

<210> 364
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 364
ggttctacca gctctaccgc agaatctcct ggtccaggta cctctactcc ggaaagcggc 60

tctgcatctc caggttctac tagcgaatct ccttctggca ctgcacca 108

<210> 365
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 365
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr

1 5 10 15

Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly
20 25 30

Ser Ala Ser Pro
35

<210> 366
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 366
ggttctacta gctctactgc agaatctcct ggcccaggta cctctactcc ggaaagcggc 60

tctgcatctc caggtacttc tacccctgaa agcggttctg catctcca 108

<210> 367
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 367
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro
35

<210> 368
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polynucleotide

<400> 368
ggttctacca gcgaatctcc ttctggcacc gctccaggta cctctcctag cggcgaatct 60

tctaccgctc caggttctac tagcgaatct ccttctggca ctgcacca 108

<210> 369
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 369
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
20 25 30

Ser Thr Ala Pro
35

<210> 370
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 370
ggttccacca gctctactgc agaatctccg ggcccaggtt ctactagctc tactgcagaa 60

tctccgggtc caggtacttc tcctagcggc gaatcttcta ccgctcca 108

<210> 371
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 371

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr
1   5   10   15

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
            20   25   30

Gly Thr Ala Pro
        35

<210> 372
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 372
ggttccacta gctctactgc agaatctcct ggcccaggta cctctacccc tgaaagcggc 60

tctgcatctc caggttctac cagcgaatcc ccgtctggca ccgcacca   108

<210> 373
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 373
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1   5   10   15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
            20   25   30

Ser Thr Ala Pro
        35

<210> 374
<211> 108
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 374
ggttctacta gctctactgc tgaatctccg ggtccaggtt ctaccagctc tactgctgaa 60

tctcctggtc caggtacctc cccgagcggt gaatcttcta ctgcacca 108

<210> 375
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 375
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro
35

<210> 376
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 376
ggttctacca gctctaccgc tgaatctcct ggcccaggtt ctaccagcga atccccgtct 60

ggcaccgcac caggttctac tagctctacc gctgaatctc cgggtcca 108

<210> 377
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 377
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1   5   10   15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
            20   25   30

Ser Pro Gly Pro
        35

<210> 378
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 378
ggttctacca gctctaccgc agaatctcct ggcccaggtt ccactagctc taccgctgaa   60

tctcctggtc caggttctac tagctctacc gctgaatctc ctggtcca   108

<210> 379
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 379
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
1   5   10   15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
            20   25   30

Ser Pro Gly Pro
        35

<210> 380
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 380
ggttctacta gcgaatcccc ttctggtact gctccaggtt ccactagctc taccgctgaa 60

tctcctggcc caggttccac tagctctact gcagaatctc ctggtcca 108

<210> 381
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 381
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro
35

<210> 382
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 382
ggttctacta gcgaatctcc ttctggtacc gctccaggtt ctaccagcga atccccgtct 60

ggtactgctc caggttctac cagcgaatct ccttctggta ctgcacca 108

<210> 383
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 383
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1   5   10   15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
            20   25   30

Ser Pro Gly Pro
        35

<210> 384
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 384
ggttccacca gctctactgc tgaatctcct ggcccaggtt ctaccagctc tactgctgaa 60

tctccgggcc caggttccac cagctctacc gctgaatctc cgggtcca   108

<210> 385
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 385
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1   5   10   15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
            20   25   30

Ser Thr Ala Pro
        35

<210> 386
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 386
ggttccacta gctctaccgc agaatctcct ggtccaggtt ctactagctc tactgctgaa 60

tctccgggtc caggtacctc ccctagcggc gaatcttcta ccgctcca 108

<210> 387
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 387
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 388
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 388
ggttctagcc cttctgcttc caccggtacc ggcccaggta gctctactcc gtctggtgca 60

actggctctc caggtagctc tactccgtct ggtgcaaccg gctcccca 108

<210> 389
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<400> 389
Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Thr
1 5 10 15

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro
35

<210> 390
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 390
ggtacttccc ctagcggtga atcttctact gctccaggta cctctactcc ggaaagcggc 60

tccgcatctc caggttctac tagctctact gctgaatctc ctggtcca 108

<210> 391
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 391
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
20 25 30

Ser Ala Ser Pro
35

<210> 392
<211> 108
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 392
ggttctacta gctctaccgc tgaatctccg ggtccaggtt ctaccagctc tactgcagaa 60

tctcctggcc caggtacttc tactccggaa agcggttccg cttctcca 108

<210> 393
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 393
Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
20 25 30

Ser Ala Ser Pro
35

<210> 394
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 394
ggtacttctc ctagcggtga atcttctacc gctccaggtt ctaccagctc tactgctgaa 60

tctcctggcc caggtacttc taccccggaa agcggctccg cttctcca 108

<210> 395
<211> 36
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 395
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro
35

<210> 396
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 396
ggttctacta gcgaatcccc ttctggtact gcaccaggtt ctaccagctc tactgctgaa 60

tctccgggcc caggttccac agctctacc gcagaatctc ctggtcca 108

<210> 397
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 397
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro
35

<210> 398
<211> 108

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 398
ggttccacca gctctaccgc tgaatctccg ggcccaggtt ctaccagcga atccccttct 60

ggcactgcac caggttctac tagctctacc gcagaatctc cgggccca 108

<210> 399
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 399
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly
20 25 30

Ser Ala Ser Pro
35

<210> 400
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 400
ggttctacca gctctactgc tgaatctccg ggtccaggta cttccccgag cggtgaatct 60

tctactgcac caggtacttc tactccggaa agcggttccg cttctcca 108

<210> 401
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 401
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
20 25 30

Ser Thr Ala Pro
35

<210> 402
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 402
ggttctacca gcgaatctcc ttctggcacc gctccaggtt ctactagcga atccccgtct 60

ggtaccgcac caggtacttc tcctagcggc gaatcttcta ccgcacca 108

<210> 403
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 403
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly
20 25 30

Ser Ala Ser Pro
35

<210> 404

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

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 404
ggttctacca gcgaatcccc ttctggtact gctccaggtt ctaccagcga atccccttct 60

ggcaccgcac caggtacttc tacccctgaa agcggctccg cttctcca 108

<210> 405
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 405
Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro
35

<210> 406
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 406
ggtacctcta ctcctgaaag cggttctgca tctccaggtt ccactagctc taccgcagaa 60

tctccgggcc caggttctac tagctctact gctgaatctc ctggccca 108

<210> 407
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 407
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
20 25 30

Ser Thr Ala Pro
35

<210> 408
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 408
ggttctacca gcgaatcccc ttctggcact gcaccaggtt ctactagcga atccccttct 60

ggtaccgcac caggtacttc tccgagcggc gaatcttcta ctgctcca 108

<210> 409
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 409
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro
35

<210> 410
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 410
ggttctacta gctctaccgc tgaatctcct ggcccaggtt ccactagctc taccgcagaa 60

tctccgggcc caggttctac tagcgaatcc ccttctggta ccgctcca 108

<210> 411
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 411
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
20 25 30

Ser Ala Ser Pro
35

<210> 412
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 412
ggttccacca gctctactgc agaatctcct ggcccaggtt ctactagctc taccgcagaa 60

tctcctggtc caggtacctc tactcctgaa agcggttccg catctcca 108

<210> 413
<211> 36
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 413
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro
35

<210> 414
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 414
ggttctacta gctctactgc tgaatctccg ggcccaggtt ctactagctc taccgctgaa 60

tctccgggtc caggttctac tagcgaatct ccttctggta ccgctcca 108

<210> 415
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 415
Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro
35

<210> 416
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 416
ggtacctccc cgagcggtga atcttctact gcaccaggtt ctactagcga atccccttct 60

ggtactgctc caggttccac cagctctact gcagaatctc cgggtcca 108

<210> 417
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 417
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro
35

<210> 418
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 418
ggttctacta gcgaatcccc gtctggtact gctccaggta cttcccctag cggtgaatct 60

tctactgctc caggttctac cagctctacc gcagaatctc cgggtcca 108

<210> 419
<211> 36

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 419
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
20 25 30

Ser Thr Ala Pro
35

<210> 420
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 420
ggttctacca gctctaccgc tgaatctcct ggcccaggtt ctactagcga atctccgtct 60

ggcaccgcac caggtacttc ccctagcggt gaatcttcta ctgcacca 108

<210> 421
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 421
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly
20 25 30

Ser Ala Ser Pro
35

<210> 422
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 422
ggttctacta gcgaatctcc ttctggcact gcaccaggtt ctaccagcga atctccgtct 60

ggcactgcac caggtacctc tacccctgaa agcggttccg cttctcca 108

<210> 423
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 423
Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro
35

<210> 424
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 424
ggtacctcta ctccggaaag cggttccgca tctccaggtt ctaccagcga atccccgtct 60

ggcaccgcac caggttctac tagctctact gctgaatctc cgggccca 108

<210> 425

<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 425
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
20 25 30

Ser Thr Ala Pro
35

<210> 426
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 426
ggttctacta gctctactgc agaatctccg ggcccaggta cctctcctag cggtgaatct 60

tctaccgctc caggtacttc tccgagcggt gaatcttcta ccgctcca 108

<210> 427
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 427
Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
20 25 30

Ser Thr Ala Pro

35

<210> 428
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 428
ggtacctccc ctagcggcga atcttctact gctccaggta cctctcctag cggcgaatct 60

tctaccgctc caggtacctc ccctagcggt gaatcttcta ccgcacca 108

<210> 429
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 429
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr
1 5 10 15

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro
35

<210> 430
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 430
ggttccacta gctctactgc tgaatctcct ggcccaggta cttctactcc ggaaagcggt 60

tccgcttctc caggttctac tagcgaatct ccgtctggca ccgcacca 108

<210> 431
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 431
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
20 25 30

Ser Thr Ala Pro
35

<210> 432
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 432
ggttctacta gcgaatctcc gtctggcact gctccaggta cttctcctag cggtgaatct 60

tctaccgctc caggtacttc ccctagcggc gaatcttcta ccgctcca 108

<210> 433
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 433
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
1 5 10 15

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro
35

<210> 434
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 434
ggttctacta gcgaatctcc ttctggtacc gctccaggta cttctacccc tgaaagcggc 60

tccgcttctc caggttccac tagctctacc gctgaatctc cgggtcca 108

<210> 435
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 435
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro
35

<210> 436
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 436
ggttccacta gctctactgc tgaatctcct ggcccaggtt ctaccagctc taccgctgaa 60

tctcctggcc caggttctac cagcgaatct ccgtctggca ccgcacca 108

<210> 437
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 437
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
1 5 10 15

Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly
20 25 30

Ser Ala Ser Pro
35

<210> 438
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 438
ggttctacta gcgaatcccc gtctggtacc gcaccaggta cttctacccc ggaaagcggc 60

tctgcttctc caggtacttc taccccggaa agcggctccg catctcca 108

<210> 439
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 439
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
1 5 10 15

Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly
20 25 30

Ser Ala Ser Pro
35

<210> 440
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 440
ggttctacta gcgaatcccc gtctggtact gctccaggta cttctactcc tgaaagcggt 60

tccgcttctc caggtacctc tactccggaa agcggttctg catctcca 108

<210> 441
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 441
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
1 5 10 15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 442
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 442
ggtgcatccc cgggcactag ctctaccggt tctccaggta ctcctggtag cggtactgct 60

tcttcttctc caggtagctc tactccttct ggtgctactg gttctcca 108

<210> 443
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 443
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 444
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 444
ggtagctcta ccccttctgg tgctaccggc tctccaggtt ctagcccgtc tgcttctacc 60

ggtaccggtc caggtagctc tacccccttct ggtgctactg gttctcca 108

<210> 445
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 445
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
        35

<210> 446
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 446
ggtgcatctc cgggtactag ctctaccggt tctccaggtt ctagcccttc tgcttccact 60

ggtaccggcc caggtagctc taccccgtct ggtgctactg gttcccca 108

<210> 447
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 447
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1   5   10   15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            20   25   30

Thr Gly Ser Pro
        35

<210> 448
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 448
ggtactccgg gcagcggtac tgcttcttcc tctccaggta gctctacccc ttctggtgca 60

actggttccc caggtgcatc ccctggtact agctctaccg gttctcca 108

<210> 449
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 449
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
1 5 10 15

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Arg Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro
35

<210> 450
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 450
ggtacccctg gcagcggtac tgcttcttct tctccaggtg cttcccctgg taccagctct 60

accggttctc caggttctag accttctgca tccaccggta ctggtcca 108

<210> 451
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 451
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser

20 25 30

Thr Gly Ser Pro
35

<210> 452
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 452
ggtgcatctc ctggtaccag ctctaccggt tctccaggta gctctactcc ttctggtgct 60

actggctctc caggtgcttc cccgggtacc agctctaccg gttctcca 108

<210> 453
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 453
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 454
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 454
ggtaccccgg gcagcggtac cgcatcttcc tctccaggta gctctacccc gtctggtgct 60

accggttccc caggtagctc taccccgtct ggtgcaaccg gctcccca 108

<210> 455
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 455
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
1 5 10 15

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 456
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 456
ggtgcatctc cgggcactag ctctactggt tctccaggtg catcccctgg cactagctct 60

actggttctc caggtgcttc tcctggtacc agctctactg gttctcca 108

<210> 457
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 457
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 458
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 458
ggtagctcta ctccgtctgg tgcaaccggc tccccaggtt ctagcccgtc tgcttccact 60

ggtactggcc caggtgcttc cccgggcacc agctctactg gttctcca 108

<210> 459
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 459
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
20 25 30

Ser Ser Ser Pro
35

<210> 460
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 460

ggtagctcta ctccttctgg tgctaccggt tccccaggta gctctactcc ttctggtgct 60

actggttccc caggtactcc gggcagcggt actgcttctt cctctcca 108

<210> 461
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 461
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 462
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 462
ggtagctcta ctccgtctgg tgcaaccggt tccccaggta gctctactcc ttctggtgct 60

actggctccc caggtgcatc ccctggcacc agctctaccg gttctcca 108

<210> 463
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 463
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 464
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 464
ggtactcctg gtagcggtac cgcatcttcc tctccaggtt ctagcccttc tgcatctacc 60

ggtaccggtc caggtagctc tactccttct ggtgctactg gctctcca 108

<210> 465
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 465
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
20 25 30

Ser Ser Ser Pro
35

<210> 466
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 466
ggtgcttccc cgggcactag ctctaccggt tctccaggtt ctagcccttc tgcatctact 60

ggtactggcc caggtactcc gggcagcggt actgcttctt cctctcca 108

<210> 467
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 467
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 468
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 468
ggtagctcta ctccgtctgg tgctaccggc tctccaggta gctctacccc ttctggtgca 60

accggctccc caggtgcttc tccgggtacc agctctactg gttctcca 108

<210> 469
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 469
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            20   25   30

Gly Thr Gly Pro
        35

<210> 470
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 470
ggtacccctg gcagcggtac cgcttcttcc tctccaggta gctctacccc gtctggtgct 60

actggctctc caggttctag cccgtctgca tctaccggta ccggccca   108

<210> 471
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 471
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
1   5   10   15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            20   25   30

Ser Ser Ser Pro
        35

<210> 472
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 472
ggtagctcta ctccttctgg tgcaaccggc tccccaggta ccccgggcag cggtaccgca 60

tcttcctctc caggtactcc gggtagcggt actgcttctt cttctcca 108

<210> 473
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 473
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 474
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 474
ggtaccccgg gtagcggtac tgcttcttcc tctccaggta gctctacccc ttctggtgca 60

accggctctc caggtgcttc tccgggcacc agctctaccg gttctcca 108

<210> 475
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 475
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr

1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 476
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 476
ggtagctcta ccccgtctgg tgctaccggc tctccaggta gctctacccc gtctggtgca 60

accggctccc caggtgcatc cccgggtact agctctaccg gttctcca 108

<210> 477
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 477
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
1 5 10 15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 478
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polynucleotide

<400> 478
ggtgcttctc cgggcaccag ctctactggt tctccaggta ccccgggcag cggtaccgca 60

tcttcttctc caggtagctc tactccttct ggtgcaactg gttctcca 108

<210> 479
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 479
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
20 25 30

Ser Ser Ser Pro
35

<210> 480
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 480
ggttctagcc cgtctgcttc caccggtact ggcccaggta gctctacccc gtctggtgca 60

actggttccc caggtacccc tggtagcggt accgcttctt cttctcca 108

<210> 481
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 481

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1   5   10   15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
            20   25   30

Thr Gly Ser Pro
        35

<210> 482
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 482
ggtgcttctc cgggcaccag ctctactggt tctccaggtt ctagcccttc tgcatccacc 60

ggtaccggtc caggtagctc taccccttct ggtgcaaccg gctctcca   108

<210> 483
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 483
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
1   5   10   15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            20   25   30

Thr Gly Ser Pro
        35

<210> 484
<211> 108
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 484
ggtgcatccc cgggcaccag ctctaccggt tctccaggta gctctacccc gtctggtgct 60

accggctctc caggtagctc taccccgtct ggtgctactg gctctcca 108

<210> 485
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 485
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
20 25 30

Ser Ser Ser Pro
35

<210> 486
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 486
ggtacccctg gtagcggtac tgcttcttcc tctccaggta gctctactcc gtctggtgct 60

accggttctc caggtacccc gggtagcggt accgcatctt cttctcca 108

<210> 487
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 487
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
1   5   10   15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            20   25   30

Thr Gly Ser Pro
        35

<210> 488
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 488
ggttctagcc cttctgcttc caccggtact ggcccaggta gctctacccc ttctggtgct   60

accggctccc caggtagctc tactccttct ggtgcaactg gctctcca   108

<210> 489
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 489
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1   5   10   15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
            20   25   30

Gly Thr Gly Pro
        35

<210> 490
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 490
ggtgcttctc ctggcaccag ctctactggt tctccaggtt ctagcccttc tgcttctacc 60

ggtactggtc caggttctag cccttctgca tccactggta ctggtcca 108

<210> 491
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 491
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
1 5 10 15

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 492
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 492
ggtactcctg gcagcggtac cgcttcttct tctccaggtg cttctcctgg tactagctct 60

actggttctc caggtgcttc tccgggcact agctctactg gttctcca 108

<210> 493
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 493
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
1   5   10   15

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            20   25   30

Thr Gly Ser Pro
        35

<210> 494
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 494
ggtagctcta ccccgtctgg tgctaccggt tccccaggtg cttctcctgg tactagctct 60

accggttctc caggtagctc taccccgtct ggtgctactg gctctcca   108

<210> 495
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 495
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
1   5   10   15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            20   25   30

Thr Gly Ser Pro
        35

<210> 496
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 496
ggtagctcta ccccgtctgg tgctactggt tctccaggta ctccgggcag cggtactgct 60

tcttcctctc caggtagctc tacccttct ggtgctactg gctctcca 108

<210> 497
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 497
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 498
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 498
ggtgcatctc ctggtaccag ctctactggt tctccaggtt ctagcccttc tgcttctacc 60

ggtaccggtc caggtagctc tactccttct ggtgctaccg gttctcca 108

<210> 499
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<400> 499
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 500
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 500
ggtagctcta ccccgtctgg tgctactggc tctccaggta gctctactcc ttctggtgct 60

actggttccc caggtagctc taccccgtct ggtgcaactg gctctcca 108

<210> 501
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 501
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
1 5 10 15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 502
<211> 108
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 502
ggtgcatccc cgggtaccag ctctaccggt tctccaggta ctcctggcag cggtactgca 60

tcttcctctc caggtgcttc tccgggcacc agctctactg gttctcca 108

<210> 503
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 503
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 504
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 504
ggtagctcta ctccttctgg tgcaactggt tctccaggtt ctagcccgtc tgcatccact 60

ggtaccggtc caggtgcttc ccctggcacc agctctaccg gttctcca 108

<210> 505
<211> 36
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 505
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro
35

<210> 506
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 506
ggtgcatctc ctggtactag ctctactggt tctccaggta gctctactcc gtctggtgca 60

accggctctc caggttctag cccttctgca tctaccggta ctggtcca 108

<210> 507
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 507
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 508
<211> 108

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 508
ggtactcctg gcagcggtac cgcatcttcc tctccaggta gctctactcc gtctggtgca 60

actggttccc caggtgcttc tccgggtacc agctctaccg gttctcca 108

<210> 509
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 509
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
1 5 10 15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 510
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 510
ggtagctcta ccccgtctgg tgcaaccggc tccccaggta ctcctggtag cggtaccgct 60

tcttcttctc caggtagctc tactccgtct ggtgctaccg gctcccca 108

<210> 511
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 511
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 512
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 512
ggttctagcc cttctgcatc caccggtacc ggcccaggtt ctagcccgtc tgcttctacc 60

ggtactggtc caggtgcttc tccgggtact agctctactg gttctcca 108

<210> 513
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 513
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Asn Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro
35

<210> 514

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

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 514
ggtaccccgg gtagcggtac cgcttcttct tctccaggta gctctactcc gtctggtgct 60

accggctctc caggttctaa cccttctgca tccaccggta ccggccca 108

<210> 515
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 515
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
20 25 30

Thr Gly Ser Pro
35

<210> 516
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 516
ggttctagcc cttctgcatc tactggtact ggcccaggta gctctactcc ttctggtgct 60

accggctctc caggtgcttc tccgggtact agctctaccg gttctcca 108

<210> 517
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 517
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
1 5 10 15

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
20 25 30

Ser Ser Ser Pro
35

<210> 518
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 518
ggtagctcta ccccttctgg tgcaaccggc tctccaggtg catccccggg taccagctct 60

accggttctc caggtactcc gggtagcggt accgcttctt cctctcca 108

<210> 519
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 519
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 520
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 520
ggtagctcta ctccgtctgg tgcaaccggt tccccaggta gctctacccc ttctggtgca 60

accggctccc caggtagctc tacccttct ggtgcaactg gctctcca 108

<210> 521
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 521
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
1 5 10 15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 522
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 522
ggtgcttctc ctggcactag ctctaccggt tctccaggta cccctggtag cggtaccgca 60

tcttcctctc caggtagctc tactccttct ggtgctactg gttcccca 108

<210> 523
<211> 36
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 523
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro
35

<210> 524
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 524
ggtagctcta ccccgtctgg tgctactggc tccccaggtt ctagcccttc tgcatccacc 60

ggtaccggtc caggttctag cccgtctgca tctactggta ctggtcca 108

<210> 525
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 525
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro
35

<210> 526
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 526
ggtgcttccc cgggcaccag ctctactggt tctccaggtt ctagcccgtc tgcttctact 60

ggtactggtc caggttctag cccttctgct tccactggta ctggtcca 108

<210> 527
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 527
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
20 25 30

Ser Ser Ser Pro
35

<210> 528
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 528
ggtgcttccc cgggtaccag ctctaccggt tctccaggtt ctagcccttc tgcttctacc 60

ggtaccggtc caggtacccc tggcagcggt accgcatctt cctctcca 108

<210> 529
<211> 432

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 529
ggtaccccgg gcagcggtac cgcatcttcc tctccaggta gctctacccc gtctggtgct 60

accggttccc caggtagctc taccccgtct ggtgcaaccg gctccccagg tagcccggct 120

ggctctccta cctctactga ggaaggtact tctgaaagcg ctactcctga gtctggtcca 180

ggtacctcta ctgaaccgtc cgaaggtagc gctccaggtt ctagcccttc tgcatccacc 240

ggtaccggcc caggttctag cccgtctgct tctaccggta ctggtccagg tgcttctccg 300

ggtactagct ctactggttc tccaggtacc tctaccgaac cgtccgaggg tagcgcacca 360

ggtacctcta ctgaaccgtc tgagggtagc gctccaggta gcgaaccggc aacctccggt 420

tctgaaactc ca 432

<210> 530
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 530
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr
65 70 75 80

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Ser Thr
100 105 110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
115 120 125

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
130 135 140

<210> 531
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 531
ggttctacca gcgaatcccc ttctggcact gcaccaggtt ctactagcga atccccttct 60

ggtaccgcac caggtacttc tccgagcggc gaatcttcta ctgctccagg tacctctact 120

gaaccttccg aaggcagcgc tccaggtacc tctaccgaac cgtccgaggg cagcgcacca 180

ggtacttctg aaagcgcaac ccctgaatcc ggtccaggtg catctcctgg taccagctct 240

accggttctc caggtagctc tactccttct ggtgctactg gctctccagg tgcttccccg 300

ggtaccagct ctaccggttc tccaggttct actagcgaat ctccttctgg cactgcacca 360

ggttctacca gcgaatctcc gtctggcact gcaccaggta cctctacccc tgaaagcggt 420

tccgcttctc ca 432

<210> 532
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 532
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
            20   25   30

Ser Thr Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        35   40   45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
    50   55   60

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65   70   75   80

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                85   90   95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Thr Ser
            100   105   110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
        115   120   125

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
    130   135   140

<210> 533
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 533
ggtacttcta ccgaaccttc cgagggcagc gcaccaggta cttctgaaag cgctacccct 60

gagtccggcc caggtacttc tgaaagcgct actcctgaat ccggtccagg tacctctact 120

gaaccttctg agggcagcgc tccaggtact tctgaaagcg ctaccccgga gtccggtcca 180

ggtacttcta ctgaaccgtc cgaaggtagc gcaccaggta cttctactga accttccgaa 240

ggtagcgctc caggtagcga acctgctact tctggttctg aaaccccagg tagcccggct 300

ggctctccga cctccaccga ggaaggtgct tctcctggca ccagctctac tggttctcca 360

ggttctagcc cttctgcttc taccggtact ggtccaggtt ctagcccttc tgcatccact 420

ggtactggtc ca 432

<210> 534
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 534
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
65 70 75 80

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Pro
100 105 110

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
115 120 125

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
130 135 140

<210> 535
<211> 432
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 535
ggtagcgaac cggcaacctc tggctctgaa accccaggta cctctgaaag cgctactccg 60

gaatctggtc caggtacttc tgaaagcgct actccggaat ccggtccagg ttctaccagc 120

gaatctcctt ctggcaccgc tccaggttct actagcgaat ccccgtctgg taccgcacca 180

ggtacttctc ctagcggcga atcttctacc gcaccaggtg catctccggg tactagctct 240

accggttctc caggttctag cccttctgct tccactggta ccggcccagg tagctctacc 300

ccgtctggtg ctactggttc cccaggtagc tctactccgt ctggtgcaac cggttcccca 360

ggtagctcta ctccttctgg tgctactggc tccccaggtg catcccctgg caccagctct 420

accggttctc ca 432

<210> 536
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 536
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
35 40 45

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
50 55 60

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro

85 90 95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
100 105 110

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
115 120 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
130 135 140

<210> 537
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 537
ggtgcttctc cgggcaccag ctctactggt tctccaggtt ctagcccttc tgcatccacc 60

ggtaccggtc caggtagctc taccccttct ggtgcaaccg gctctccagg tacttctgaa 120

agcgctaccc cggaatctgg cccaggtagc gaaccggcta cttctggttc tgaaacccca 180

ggtagcgaac cggctacctc cggttctgaa actccaggta cttctgaaag cgctactccg 240

gagtccggtc caggtacctc taccgaaccg tccgaaggca gcgctccagg tacttctact 300

gaaccttctg agggtagcgc tccaggtacc tctaccgaac cgtccgaggg tagcgcacca 360

ggtacctcta ctgaaccgtc tgagggtagc gctccaggta gcgaaccggc aacctccggt 420

tctgaaactc ca 432

<210> 538
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 538
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
            20   25   30

Thr Gly Ser Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        35   40   45

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
    50   55   60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
65   70   75   80

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                85   90   95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            100   105   110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        115   120   125

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    130   135   140

<210> 539
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 539
ggtacctcta ccgaaccttc cgaaggtagc gctccaggta gcccggcagg ttctcctact 60

tccactgagg aaggtacttc taccgaacct tctgagggta gcgcaccagg tacctctgaa 120

agcgcaactc ctgagtctgg cccaggtagc gaacctgcta cctccggctc tgagactcca 180

ggtacctctg aaagcgcaac cccggaatct ggtccaggta gcccggctgg ctctcctacc 240

tctactgagg aaggtacttc tgaaagcgct actcctgagt ctggtccagg tacctctact 300

gaaccgtccg aaggtagcgc tccaggtagc gaacctgcta cttctggttc tgaaactcca 360

ggtacttcta ccgaaccgtc cgagggtagc gctccaggta gcgaacctgc tacttctggt 420

tctgaaactc ca 432

<210> 540
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 540
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
1 5 10 15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
35 40 45

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
50 55 60

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
65 70 75 80

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
100 105 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
115 120 125

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
130 135 140

<210> 541
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 541
ggtacttcta ccgaaccgtc cgaaggcagc gctccaggta cctctactga accttccgag 60

ggcagcgctc caggtacctc taccgaacct tctgaaggta gcgcaccagg tacttctacc 120

gaaccgtccg aaggcagcgc tccaggtacc tctactgaac cttccgaggg cagcgctcca 180

ggtacctcta ccgaaccttc tgaaggtagc gcaccaggta cttctaccga accttccgag 240

ggcagcgcac caggtacttc tgaaagcgct acccctgagt ccggcccagg tacttctgaa 300

agcgctactc ctgaatccgg tccaggtact tctactgaac cttccgaagg tagcgctcca 360

ggtagcgaac ctgctacttc tggttctgaa accccaggta gcccggctgg ctctccgacc 420

tccaccgagg aa 432

<210> 542
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 542
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
65 70 75 80

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
85 90 95

```
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
            100                 105                 110


Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
        115                 120                 125


Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140


<210> 543
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 543
ggtacttcta ccgaaccgtc cgagggcagc gctccaggta cttctactga accttctgaa       60

ggcagcgctc caggtacttc tactgaacct tccgaaggta gcgcaccagg ttctaccagc      120

gaatcccctt ctggtactgc tccaggttct accagcgaat ccccttctgg caccgcacca      180

ggtacttcta cccctgaaag cggctccgct tctccaggta gcgaacctgc aacctctggc      240

tctgaaaccc caggtacctc tgaaagcgct actcctgaat ctggcccagg tacttctact      300

gaaccgtccg agggcagcgc accaggtact tctactgaac cgtctgaagg tagcgcacca      360

ggtacttctg aaagcgcaac cccggaatcc ggcccaggta cctctgaaag cgcaaccccg      420

gagtccggcc ca                                                          432


<210> 544
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 544
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1               5                   10                  15
```

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            20   25   30

Gly Ser Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
        35   40   45

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
    50   55   60

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu Pro Ala Thr Ser Gly
65   70   75   80

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                85   90   95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            100   105   110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
        115   120   125

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    130   135   140

<210> 545
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 545
ggtagctcta ccccttctgg tgctaccggc tctccaggtt ctagcccgtc tgcttctacc 60

ggtaccggtc caggtagctc tacccttct ggtgctactg gttctccagg tagccctgct 120

ggctctccga cttctactga ggaaggtagc ccggctggtt ctccgacttc tactgaggaa 180

ggtacttcta ccgaaccttc cgaaggtagc gctccaggtg cttccccggg cactagctct 240

accggttctc caggttctag cccttctgca tctactggta ctggcccagg tactccgggc 300

agcggtactg cttcttcctc tccaggttct actagctcta ctgctgaatc tcctggccca 360

ggtacttctc ctagcggtga atcttctacc gctccaggta cctctactcc ggaaagcggt 420

tctgcatctc ca 432

<210> 546
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 546
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
85 90 95

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Thr Ser
100 105 110

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
115 120 125

Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
130 135 140

<210> 547
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 547
ggtacctcta ctgaaccttc tgagggcagc gctccaggta cttctgaaag cgctaccccg 60

gagtccggtc caggtacttc tactgaaccg tccgaaggta gcgcaccagg tacttctact 120

gaaccgtctg aaggtagcgc accaggtact tctgaaagcg caaccccgga atccggccca 180

ggtacctctg aaagcgcaac cccggagtcc ggcccaggta ctcctggcag cggtaccgct 240

tcttcttctc caggtgcttc tcctggtact agctctactg gttctccagg tgcttctccg 300

ggcactagct ctactggttc tccaggtagc cctgctggct ctccgacttc tactgaggaa 360

ggtagcccgg ctggttctcc gacttctact gaggaaggta cttctaccga accttccgaa 420

ggtagcgctc ca 432

<210> 548
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 548
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
50 55 60

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
65 70 75 80

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Pro Ala
100 105 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
115 120 125

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

<210> 549
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 549
ggtagcccag caggctctcc gacttccact gaggaaggta cttctactga accttccgaa 60

ggcagcgcac caggtacctc tactgaacct tctgagggca gcgctccagg tacctctacc 120

gaaccgtctg aaggtagcgc accaggtacc tctgaaagcg caactcctga gtccggtcca 180

ggtacttctg aaagcgcaac cccggagtct ggcccaggta ccccgggtag cggtactgct 240

tcttcctctc caggtagctc tacccttct ggtgcaaccg gctctccagg tgcttctccg 300

ggcaccagct ctaccggttc tccaggtacc tctactgaac cttctgaggg cagcgctcca 360

ggtacttctg aaagcgctac cccggagtcc ggtccaggta cttctactga accgtccgaa 420

ggtagcgcac ca 432

<210> 550
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 550
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu

20 25 30

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
50 55 60

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
65 70 75 80

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Ser Thr
100 105 110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

<210> 551
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 551
ggtagcgaac cggcaacctc cggctctgaa actccaggta cttctgaaag cgctactccg 60

gaatccggcc caggtagcga accggctact tccggctctg aaaccccagg tagctctacc 120

ccgtctggtg caaccggctc cccaggtact cctggtagcg gtaccgcttc ttcttctcca 180

ggtagctcta ctccgtctgg tgctaccggc tccccaggtg catctcctgg taccagctct 240

accggttctc caggtagctc tactccttct ggtgctactg gctctccagg tgcttccccg 300

ggtaccagct ctaccggttc tccaggtagc gaacctgcta cttctggttc tgaaactcca 360

ggtacttcta ccgaaccgtc cgagggtagc gctccaggta gcgaacctgc tacttctggt 420

tctgaaactc ca 432

<210> 552
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 552
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
35 40 45

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
50 55 60

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Glu Pro
100 105 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
115 120 125

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
130 135 140

<210> 553
<211> 432
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 553
ggtacctcta ctgaaccttc cgaaggcagc gctccaggta cctctaccga accgtccgag 60

ggcagcgcac caggtacttc tgaaagcgca acccctgaat ccggtccagg tagccctgct 120

ggctctccga cttctactga ggaaggtagc ccggctggtt ctccgacttc tactgaggaa 180

ggtacttcta ccgaaccttc cgaaggtagc gctccaggta gcccggctgg ttctccgact 240

tccaccgagg aaggtacctc tactgaacct tctgagggta gcgctccagg tacctctact 300

gaaccttccg aaggcagcgc tccaggtgct tccccgggca ccagctctac tggttctcca 360

ggttctagcc cgtctgcttc tactggtact ggtccaggtt ctagcccttc tgcttccact 420

ggtactggtc ca 432

<210> 554
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 554
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
65 70 75 80

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Pro
100 105 110

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
115 120 125

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
130 135 140

<210> 555
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 555
ggtagctcta ccccgtctgg tgctaccggt tccccaggtg cttctcctgg tactagctct 60

accggttctc caggtagctc taccccgtct ggtgctactg gctctccagg tagccctgct 120

ggctctccaa cctccaccga agaaggtacc tctgaaagcg caacccctga atccggccca 180

ggtagcgaac cggcaacctc cggttctgaa accccaggtg catctcctgg tactagctct 240

actggttctc caggtagctc tactccgtct ggtgcaaccg gctctccagg ttctagccct 300

tctgcatcta ccggtactgg tccaggttct accagcgaat ccccttctgg tactgctcca 360

ggttctacca gcgaatcccc ttctggcacc gcaccaggta cttctacccc tgaaagcggc 420

tccgcttctc ca 432

<210> 556
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 556
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
1 5 10 15

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

```
Thr Gly Ser Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        35                  40                  45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    50                  55                  60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ala Ser Pro Gly Thr Ser Ser
65                  70                  75                  80

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                85                  90                  95

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Thr Ser
            100                 105                 110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
        115                 120                 125

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
    130                 135                 140
```

<210> 557
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 557
ggttctacca gcgaatctcc ttctggcacc gctccaggtt ctactagcga atccccgtct 60

ggtaccgcac caggtacttc tcctagcggc gaatcttcta ccgcaccagg tacctctgaa 120

agcgctactc cggagtctgg cccaggtacc tctactgaac cgtctgaggg tagcgctcca 180

ggtacttcta ctgaaccgtc cgaaggtagc gcaccaggta cctctactga accttctgag 240

ggcagcgctc caggtacttc tgaaagcgct accccggagt ccggtccagg tacttctact 300

gaaccgtccg aaggtagcgc accaggtagc tctaccccgt ctggtgctac cggttcccca 360

ggtgcttctc ctggtactag ctctaccggt tctccaggta gctctacccc gtctggtgct 420

actggctctc ca 432

<210> 558
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 558
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
20 25 30

Ser Thr Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
65 70 75 80

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Thr
100 105 110

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
115 120 125

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
130 135 140

<210> 559
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polynucleotide

<400> 559
ggttctacta gctctactgc agaatctccg ggcccaggta cctctcctag cggtgaatct 60

tctaccgctc caggtacttc tccgagcggt gaatcttcta ccgctccagg ttctactagc 120

tctaccgctg aatctccggg tccaggttct accagctcta ctgcagaatc tcctggccca 180

ggtacttcta ctccggaaag cggttccgct tctccaggta cttctcctag cggtgaatct 240

tctaccgctc caggttctac agctctact gctgaatctc ctggcccagg tacttctacc 300

ccggaaagcg gctccgcttc tccaggttct accagctcta ccgctgaatc tcctggccca 360

ggttctacta gcgaatctcc gtctggcacc gcaccaggta cttcccctag cggtgaatct 420

tctactgcac ca 432

<210> 560
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 560
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
1 5 10 15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
20 25 30

Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
35 40 45

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr
50 55 60

Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Pro Ser Gly Glu Ser
65 70 75 80

Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
85 90 95

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser

100 105 110

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser
115 120 125

Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
130 135 140

<210> 561
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 561
ggtacctcta ctccggaaag cggttccgca tctccaggtt ctaccagcga atccccgtct 60

ggcaccgcac caggttctac tagctctact gctgaatctc cgggcccagg tacctctact 120

gaaccttccg aaggcagcgc tccaggtacc tctaccgaac cgtccgaggg cagcgcacca 180

ggtacttctg aaagcgcaac ccctgaatcc ggtccaggta cctctgaaag cgctactccg 240

gagtctggcc caggtacctc tactgaaccg tctgagggta gcgctccagg tacttctact 300

gaaccgtccg aaggtagcgc accaggtact tctgaaagcg ctactccgga gtccggtcca 360

ggtacctcta ccgaaccgtc cgaaggcagc gctccaggta cttctactga accttctgag 420

ggtagcgctc cc 432

<210> 562
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 562
Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
1 5 10 15

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
50 55 60

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
100 105 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
115 120 125

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

<210> 563
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 563
ggtacctcta ccgaaccgtc cgagggtagc gcaccaggta cctctactga accgtctgag 60

ggtagcgctc caggtagcga accggcaacc tccggttctg aaactccagg tacttctact 120

gaaccgtctg aaggtagcgc accaggtact tctgaaagcg caaccccgga atccggccca 180

ggtacctctg aaagcgcaac cccggagtcc ggcccaggtg catctccggg tactagctct 240

accggttctc caggttctag cccttctgct tccactggta ccggcccagg tagctctacc 300

ccgtctggtg ctactggttc cccaggtagc tctactccgt ctggtgcaac cggttcccca 360

ggtagctcta ctccttctgg tgctactggc tccccaggtg catcccctgg caccagctct 420

accggttctc ca 432

<210> 564
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 564
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
50 55 60

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
85 90 95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
100 105 110

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
115 120 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
130 135 140

<210> 565
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 565
ggtagcgaac cggcaacctc tggctctgaa actccaggta gcgaacctgc aacctccggc 60

tctgaaaccc caggtacttc tactgaacct tctgagggca gcgcaccagg tagcgaacct 120

gcaacctctg gctctgaaac cccaggtacc tctgaaagcg ctactcctga atctggccca 180

ggtacttcta ctgaaccgtc cgagggcagc gcaccaggta gctctactcc gtctggtgct 240

accggctctc caggtagctc tacccttct ggtgcaaccg gctccccagg tgcttctccg 300

ggtaccagct ctactggttc tccaggtagc tctaccccgt ctggtgctac cggttcccca 360

ggtgcttctc ctggtactag ctctaccggt tctccaggta gctctacccc gtctggtgct 420

actggctctc ca 432

<210> 566
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 566
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Thr Pro Ser Gly Ala
65 70 75 80

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
100 105 110

```
Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125


Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    130                 135                 140


<210> 567
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 567
ggtacttcta ccgaaccgtc cgagggcagc gctccaggta cttctactga accttctgaa       60

ggcagcgctc caggtacttc tactgaacct tccgaaggta gcgcaccagg tacttctgaa      120

agcgctactc cggagtccgg tccaggtacc tctaccgaac cgtccgaagg cagcgctcca      180

ggtacttcta ctgaaccttc tgagggtagc gctccaggtt ctactagcga atctccgtct      240

ggcactgctc caggtacttc tcctagcggt gaatcttcta ccgctccagg tacttcccct      300

agcggcgaat cttctaccgc tccaggtagc ccggctggct ctcctacctc tactgaggaa      360

ggtacttctg aaagcgctac tcctgagtct ggtccaggta cctctactga accgtccgaa      420

ggtagcgctc ca                                                          432


<210> 568
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 568
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1               5                   10                  15


Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            20                  25                  30
```

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
65 70 75 80

Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
85 90 95

Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Pro Ala
100 105 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

<210> 569
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 569
ggtacttcta ctgaaccttc cgaaggtagc gctccaggta gcgaacctgc tacttctggt 60

tctgaaaccc caggtagccc ggctggctct ccgacctcca ccgaggaagg tagcccggca 120

ggctctccga cctctactga ggaaggtact tctgaaagcg caaccccgga gtccggccca 180

ggtacctcta ccgaaccgtc tgagggcagc gcaccaggta cctctactga accttccgaa 240

ggcagcgctc caggtacctc taccgaaccg tccgagggca gcgcaccagg tacttctgaa 300

agcgcaaccc ctgaatccgg tccaggtagc tctactccgt ctggtgcaac cggctcccca 360

ggttctagcc cgtctgcttc cactggtact ggcccaggtg cttccccggg caccagctct 420

actggttctc ca 432

<210> 570
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 570
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
20 25 30

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
65 70 75 80

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
85 90 95

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Ser Thr
100 105 110

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
115 120 125

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
130 135 140

<210> 571
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 571
ggtagcgaac cggctacttc cggctctgag actccaggta gccctgctgg ctctccgacc 60

tctaccgaag aaggtacctc tgaaagcgct acccctgagt ctggcccagg tacctctact 120

gaaccttccg aaggcagcgc tccaggtacc tctaccgaac cgtccgaggg cagcgcacca 180

ggtacttctg aaagcgcaac ccctgaatcc ggtccaggta cctctactcc ggaaagcggt 240

tccgcatctc caggttctac cagcgaatcc ccgtctggca ccgcaccagg ttctactagc 300

tctactgctg aatctccggg cccaggtact tctgaaagcg ctactccgga gtccggtcca 360

ggtacctcta ccgaaccgtc cgaaggcagc gctccaggta cttctactga accttctgag 420

ggtagcgctc ca 432

<210> 572
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 572
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
1 5 10 15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
50 55 60

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
65 70 75 80

Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
85 90 95

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Glu
100 105 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
115 120 125

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

<210> 573
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 573
ggtacttcta ccgaaccgtc cgagggcagc gctccaggta cttctactga accttctgaa 60

ggcagcgctc caggtacttc tactgaacct tccgaaggta gcgcaccagg tacctctacc 120

gaaccgtctg aaggtagcgc accaggtacc tctgaaagcg caactcctga gtccggtcca 180

ggtacttctg aaagcgcaac cccggagtct ggcccaggta ctcctggcag cggtaccgca 240

tcttcctctc caggtagctc tactccgtct ggtgcaactg gttccccagg tgcttctccg 300

ggtaccagct ctaccggttc tccaggttcc accagctcta ctgctgaatc tcctggtcca 360

ggtacctctc ctagcggtga atcttctact gctccaggta cttctactcc tgaaagcggc 420

tctgcttctc ca 432

<210> 574
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 574
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro

35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
50 55 60

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
65 70 75 80

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Thr Ser
100 105 110

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
115 120 125

Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
130 135 140

<210> 575
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 575
ggtagcccgg caggctctcc gacctctact gaggaaggta cttctgaaag cgcaaccccg 60

gagtccggcc caggtacctc taccgaaccg tctgagggca gcgcaccagg tacttctgaa 120

agcgcaaccc ctgaatccgg tccaggtagc gaaccggcta cttctggctc tgagactcca 180

ggtacttcta ccgaaccgtc cgaaggtagc gcaccaggta gcccggctgg ttctccgact 240

tccaccgagg aaggtacctc tactgaacct tctgagggta gcgctccagg tacctctact 300

gaaccttccg aaggcagcgc tccaggtact tctaccgaac cgtccgaggg cagcgctcca 360

ggtacttcta ctgaaccttc tgaaggcagc gctccaggta cttctactga accttccgaa 420

ggtagcgcac ca 432

<210> 576

<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 576
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
35 40 45

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
65 70 75 80

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
100 105 110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
115 120 125

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

<210> 577
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 577

ggtacttctc cgagcggtga atcttctacc gcaccaggtt ctactagctc taccgctgaa 60

tctccgggcc caggtacttc tccgagcggt gaatcttcta ctgctccagg tacctctgaa 120

agcgctactc cggagtctgg cccaggtacc tctactgaac cgtctgaggg tagcgctcca 180

ggtacttcta ctgaaccgtc cgaaggtagc gcaccaggtt ctagcccttc tgcatctact 240

ggtactggcc caggtagctc tactccttct ggtgctaccg gctctccagg tgcttctccg 300

ggtactagct ctaccggttc tccaggtact tctactccgg aaagcggttc cgcatctcca 360

ggtacttctc ctagcggtga atcttctact gctccaggta cctctcctag cggcgaatct 420

tctactgctc ca 432

<210> 578
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 578
Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
20 25 30

Ser Thr Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr
65 70 75 80

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
85 90 95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Ser Thr
100 105 110

Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Pro Ser Gly Glu Ser
115 120 125

Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
130 135 140

<210> 579
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 579
ggtacctctg aaagcgctac tccggagtct ggcccaggta cctctactga accgtctgag 60

ggtagcgctc caggtacttc tactgaaccg tccgaaggta gcgcaccagg tagccctgct 120

ggctctccga cttctactga ggaaggtagc ccggctggtt ctccgacttc tactgaggaa 180

ggtacttcta ccgaaccttc cgaaggtagc gctccaggtt ctagcccttc tgcttccacc 240

ggtactggcc caggtagctc taccccttct ggtgctaccg gctccccagg tagctctact 300

ccttctggtg caactggctc tccaggtagc gaaccggcaa cttccggctc tgaaacccca 360

ggtacttctg aaagcgctac tcctgagtct ggcccaggta gcgaacctgc tacctctggc 420

tctgaaaccc ca 432

<210> 580
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 580
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr
65 70 75 80

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
85 90 95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Glu Pro
100 105 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
130 135 140

<210> 581
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 581
ggtacttcta ccgaaccgtc cgaaggcagc gctccaggta cctctactga accttccgag 60

ggcagcgctc caggtacctc taccgaacct tctgaaggta gcgcaccagg tagctctacc 120

ccgtctggtg ctaccggttc cccaggtgct tctcctggta ctagctctac cggttctcca 180

ggtagctcta ccccgtctgg tgctactggc tctccaggta cttctgaaag cgcaacccct 240

gaatccggtc caggtagcga accggctact tctggctctg agactccagg tacttctacc 300

gaaccgtccg aaggtagcgc accaggttct actagcgaat ctccttctgg cactgcacca 360

ggttctacca gcgaatctcc gtctggcact gcaccaggta cctctacccc tgaaagcggt 420

tccgcttctc ca 432

<210> 582
<211> 144

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 582
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
35 40 45

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
50 55 60

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Thr Ser
100 105 110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
115 120 125

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
130 135 140

<210> 583
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 583
ggtacctcta ctcctgaaag cggttctgca tctccaggtt ccactagctc taccgcagaa 60

tctccgggcc caggttctac tagctctact gctgaatctc ctggcccagg ttctagccct 120

tctgcatcta ctggtactgg cccaggtagc tctactcctt ctggtgctac cggctctcca 180

ggtgcttctc cgggtactag ctctaccggt tctccaggta gcgaaccggc aacctccggc 240

tctgaaaccc caggtacctc tgaaagcgct actcctgaat ccggcccagg tagcccggca 300

ggttctccga cttccactga ggaaggttct actagcgaat ctccttctgg cactgcacca 360

ggttctacca gcgaatctcc gtctggcact gcaccaggta cctctacccc tgaaagcggt 420

tccgcttctc cc 432

<210> 584
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 584
Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
20 25 30

Ser Pro Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
35 40 45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
50 55 60

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Glu Pro Ala Thr Ser Gly
65 70 75 80

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
85 90 95

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Thr Ser
100 105 110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser

115 120 125

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
130 135 140

<210> 585
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 585
ggtagcccgg ctggctctcc tacctctact gaggaaggta cttctgaaag cgctactcct 60

gagtctggtc caggtacctc tactgaaccg tccgaaggta gcgctccagg ttctaccagc 120

gaatctcctt ctggcaccgc tccaggttct actagcgaat ccccgtctgg taccgcacca 180

ggtacttctc ctagcggcga atcttctacc gcaccaggta cctctaccga accttccgaa 240

ggtagcgctc caggtagccc ggcaggttct cctacttcca ctgaggaagg tacttctacc 300

gaaccttctg agggtagcgc accaggtagc gaacctgcaa cctctggctc tgaaacccca 360

ggtacctctg aaagcgctac tcctgaatct ggcccaggta cttctactga accgtccgag 420

ggcagcgcac ca 432

<210> 586
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 586
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
35 40 45

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
50 55 60

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
65 70 75 80

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
100 105 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

<210> 587
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 587
ggtacctcta ccgaaccttc cgaaggtagc gctccaggta gcccggcagg ttctcctact 60

tccactgagg aaggtacttc taccgaacct tctgagggta gcgcaccagg tacctcccct 120

agcggcgaat cttctactgc tccaggtacc tctcctagcg gcgaatcttc taccgctcca 180

ggtacctccc ctagcggtga atcttctacc gcaccaggtt ctaccagcga atcccttct 240

ggtactgctc caggttctac cagcgaatcc ccttctggca ccgcaccagg tacttctacc 300

cctgaaagcg gctccgcttc tccaggtagc gaacctgcaa cctctggctc tgaaacccca 360

ggtacctctg aaagcgctac tcctgaatct ggcccaggta cttctactga accgtccgag 420

ggcagcgcac ca 432

<210> 588
<211> 144
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 588
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
1 5 10 15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
35 40 45

Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro
50 55 60

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
65 70 75 80

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
85 90 95

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu Pro
100 105 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

<210> 589
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 589
ggtagcgaac cggcaacctc tggctctgaa accccaggta cctctgaaag cgctactccg 60

gaatctggtc caggtacttc tgaaagcgct actccggaat ccggtccagg tacttctccg 120

agcggtgaat cttctaccgc accaggttct actagctcta ccgctgaatc tccgggccca 180

ggtacttctc cgagcggtga atcttctact gctccaggtt ctactagcga atccccgtct 240

ggtactgctc caggtacttc ccctagcggt gaatcttcta ctgctccagg ttctaccagc 300

tctaccgcag aatctccggg tccaggtagc tctactccgt ctggtgcaac cggttcccca 360

ggtagctcta ccccttctgg tgcaaccggc tccccaggta gctctacccc ttctggtgca 420

aactggctct cc 432

<210> 590
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 590
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
35 40 45

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
50 55 60

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
65 70 75 80

Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
85 90 95

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Ser Thr
100 105 110

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
115 120 125

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Asn Trp Leu Ser
130 135 140

<210> 591
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 591
ggtagccctg ctggctctcc gacttctact gaggaaggta gcccggctgg ttctccgact 60

tctactgagg aaggtacttc taccgaacct tccgaaggta gcgctccagg tacctctact 120

gaaccttccg aaggcagcgc tccaggtacc tctaccgaac cgtccgaggg cagcgcacca 180

ggtacttctg aaagcgcaac ccctgaatcc ggtccaggtg catctcctgg taccagctct 240

accggttctc caggtagctc tactccttct ggtgctactg gctctccagg tgcttccccg 300

ggtaccagct ctaccggttc tccaggtagc tctaccccgt ctggtgctac tggttctcca 360

ggtactccgg gcagcggtac tgcttcttcc tctccaggta gctctacccc ttctggtgct 420

actggctctc ca 432

<210> 592
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 592
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
1 5 10 15

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
    50   55   60

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65   70   75   80

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                85   90   95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
            100   105   110

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        115   120   125

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    130   135   140

<210> 593
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 593
ggtagctcta ccccgtctgg tgctactggt tctccaggta ctccgggcag cggtactgct 60

tcttcctctc caggtagctc tacccttct ggtgctactg gctctccagg tagcccggct 120

ggctctccta cctctactga ggaaggtact tctgaaagcg ctactcctga gtctggtcca 180

ggtacctcta ctgaaccgtc cgaaggtagc gctccaggta cctctgaaag cgcaactcct 240

gagtctggcc caggtagcga acctgctacc tccggctctg agactccagg tacctctgaa 300

agcgcaaccc cggaatctgg tccaggtact tctactgaac cgtctgaagg tagcgcacca 360

ggtacttctg aaagcgcaac cccggaatcc ggcccaggta cctctgaaag cgcaaccccg 420

gagtccggcc ca   432

<210> 594
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 594
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
1 5 10 15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
100 105 110

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
130 135 140

<210> 595
<211> 1469
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 595
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

```
Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
```

```
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895
```

```
Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110
```

```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
```

```
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1430                1435                1440

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1445                1450                1455

Ser Pro  Ala Thr Gly His His  His His His His
    1460                1465


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<211> 4410
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

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<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
20 25 30

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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Arg Tyr Tyr
        35                  40                  45

Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln Ser Asp Leu Gly
    50                  55                  60

Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe
65                  70                  75                  80

Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe
                85                  90                  95

Thr Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly
            100                 105                 110

Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile
        115                 120                 125

Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly
    130                 135                 140

Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr
145                 150                 155                 160

Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His
                165                 170                 175

Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp
            180                 185                 190

Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys
        195                 200                 205

Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly
    210                 215                 220

Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255
```

```
Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480
```

```
Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
```

```
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910
```

```
Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125
```

```
Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335
```

```
Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
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<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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acccctgcct cgagcagata ctacctgggt gcagtggaac tgtcatggga ctatatgcaa 180

agtgatctcg gtgagctgcc tgtggacgca agatttcctc ctagagtgcc aaaatctttt 240

ccattcaaca cctcagtcgt gtacaaaaag actctgtttg tagaattcac ggatcacctt 300

ttcaacatcg ctaagccaag gccaccctgg atgggtctgc taggtcctac catccaggct 360

gaggtttatg atacagtggt cattacactt aagaacatgg cttcccatcc tgtcagtctt 420

catgctgttg gtgtatccta ctggaaagct tctgagggag ctgaatatga tgatcagacc 480

agtcaaaggg agaaagaaga tgataaagtc ttccctggtg gaagccatac atatgtctgg 540

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gatagggatg ctgcatctgc tcgggcctgg cctaaaatgc acacagtcaa tggttatgta 840

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ggaatgggca ccactcctga agtgcactca atattcctcg aaggtcacac atttcttgtg 960

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ctcttgatgg accttggaca gtttctactg ttttgtcata tctcttccca ccaacatgat 1080

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aataatgaag aagcggaaga ctatgatgat gatcttactg attctgaaat ggatgtggtc 1200

aggtttgatg atgacaactc tccttccttt atccaaattc gctcagttgc caagaagcat 1260

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<211> 1514
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic

polypeptide

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Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Ala Thr Arg
35 40 45

Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln Ser
50 55 60

Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val Pro
65 70 75 80

Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe
85 90 95

Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro
100 105 110

Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr
115 120 125

Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His
130 135 140

Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp
145 150 155 160

Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly
165 170 175

Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met
180 185 190

Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp
195 200 205

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Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys
    210                 215                 220

Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe
225                 230                 235                 240

Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu
                245                 250                 255

Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala
            260                 265                 270

Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro
        275                 280                 285

Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly
    290                 295                 300

Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr
305                 310                 315                 320

Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile
                325                 330                 335

Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu
            340                 345                 350

Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr
        355                 360                 365

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

Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met
385                 390                 395                 400

Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile
                405                 410                 415

Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala
            420                 425                 430
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```
Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp
        435                 440                 445

Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile
    450                 455                 460

Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr
465                 470                 475                 480

Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro
                485                 490                 495

Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn
            500                 505                 510

Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val
        515                 520                 525

Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys
    530                 535                 540

Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val
545                 550                 555                 560

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

Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu
            580                 585                 590

Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly
        595                 600                 605

Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe
    610                 615                 620

Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu
625                 630                 635                 640

Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser
                645                 650                 655
```

```
Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu
            660                 665                 670

Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly
        675                 680                 685

Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys
    690                 695                 700

His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly
705                 710                 715                 720

Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly
                725                 730                 735

Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys
            740                 745                 750

Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr
        755                 760                 765

Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro
    770                 775                 780

Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu
785                 790                 795                 800

Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp
                805                 810                 815

Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp
            820                 825                 830

Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His
        835                 840                 845

Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser
    850                 855                 860

Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln
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865                 870                 875                 880

Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln
                885                 890                 895

Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro
            900                 905                 910

Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn
        915                 920                 925

Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu
    930                 935                 940

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

Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro
                965                 970                 975

Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val
            980                 985                 990

Asp Leu Glu Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
        995                 1000                1005

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1010                1015                1020

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1025                1030                1035

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1040                1045                1050

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1055                1060                1065

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1070                1075                1080
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```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1085                1090                1095

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1100                1105                1110

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1115                1120                1125

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1130                1135                1140

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1145                1150                1155

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1160                1165                1170

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1175                1180                1185

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1190                1195                1200

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1205                1210                1215

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1220                1225                1230

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1235                1240                1245

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1250                1255                1260

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1265                1270                1275

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1280                1285                1290
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1295                1300                1305

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1310                1315                1320

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1325                1330                1335

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1340                1345                1350

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1355                1360                1365

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1370                1375                1380

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1385                1390                1395

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1400                1405                1410

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1415                1420                1425

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1430                1435                1440

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1445                1450                1455

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1460                1465                1470

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1475                1480                1485

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1490                1495                1500
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Ser Pro Ala Thr Gly His His His His His His
    1505   1510

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<211> 4545
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<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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acccctgcct cgagcgctac aagaagatac tacctgggtg cagtggaact gtcatgggac   180

tatatgcaaa gtgatctcgg tgagctgcct gtggacgcaa gatttcctcc tagagtgcca   240

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gatcaccttt tcaacatcgc taagccaagg ccaccctgga tgggtctgct aggtcctacc   360

atccaggctg aggtttatga tacagtggtc attacactta agaacatggc ttcccatcct   420

gtcagtcttc atgctgttgg tgtatcctac tggaaagctt ctgagggagc tgaatatgat   480

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tatgtctggc aggtcctgaa agagaatggt ccaatggcct ctgacccact gtgccttacc   600

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caacatgatg gcatggaagc ttatgtcaaa gtagacagct gtccagagga accccaacta   1140

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gctcccttag tcctcgcccc cgatgacaga agttataaaa gtcaatattt gaacaatggc 1380

cctcagcgga ttggtaggaa gtacaaaaaa gtccgattta tggcatacac agatgaaacc 1440

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gaagttggag acacactgtt gattatattt aagaatcaag caagcagacc atataacatc 1560

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gaaactgtct tcatgtcgat ggaaaaccca ggtctatgga ttctggggtg ccacaactca 2220

gactttcgga acagaggcat gaccgcctta ctgaaggttt ctagttgtga caagaacact 2280

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caagtgacag tacaggaatt tgctctgttt ttcaccatct ttgatgagac caaaagctgg 3120

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<210> 601
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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20 25 30

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
35 40 45

Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Ser Asp Leu Gly
50 55 60

Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe
65 70 75 80

Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe
85 90 95

Thr Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly
100 105 110

Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile
115 120 125

Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly
130 135 140

Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr
145 150 155 160

Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His

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                165                 170                 175

Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp
            180                 185                 190

Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys
        195                 200                 205

Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly
    210                 215                 220

Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255

Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380
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Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605
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Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830
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Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
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    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245
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Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455
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Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
    1460   1465   1470

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
    1475   1480   1485

Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala
    1490   1495   1500

Thr Gly His His His His His His
    1505   1510

<210> 602
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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cctgagagtg gccctggctc tgagccagcc acctccggct ctgaaacccc tgcctcgagc 180

agtgatctcg gtgagctgcc tgtggacgca agatttcctc ctagagtgcc aaaatctttt 240

ccattcaaca cctcagtcgt gtacaaaaag actctgtttg tagaattcac ggatcacctt 300

ttcaacatcg ctaagccaag gccaccctgg atgggtctgc taggtcctac catccaggct 360

gaggtttatg atacagtggt cattacactt aagaacatgg cttcccatcc tgtcagtctt 420

catgctgttg gtgtatccta ctggaaagct tctgagggag ctgaatatga tgatcagacc 480

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tgtagagaag ggagtctggc caaggaaaag acacagacct tgcacaaatt tatactactt 720

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<210> 603
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro
20 25 30

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
35 40 45

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser
50 55 60

Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe
65 70 75 80

Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe
85 90 95

Thr Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly
100 105 110

Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile
115 120 125

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Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly
    130                 135                 140

Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr
145                 150                 155                 160

Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His
                165                 170                 175

Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp
            180                 185                 190

Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys
        195                 200                 205

Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly
    210                 215                 220

Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255

Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
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            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560
```

```
Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780
```

```
Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800


Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815


Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830


Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845


Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860


Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880


Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895


Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910


Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925


Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940


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


Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975


Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990


Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005
```

```
Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
    1010                1015                1020

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
```

```
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410
```

```
Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                 1420                 1425


Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                 1435                 1440


Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                 1450                 1455


Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                 1465                 1470


Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                 1480                 1485


Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                 1495                 1500


Thr Gly  His His His His His  His
    1505                 1510
```

<210> 604
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gaaagcgcta cgcctgagag tggccctggc tctgagccag ccacctccgg ctctgaaacc 180

cctgcctcga gcgagctgcc tgtggacgca agatttcctc ctagagtgcc aaaatctttt 240

ccattcaaca cctcagtcgt gtacaaaaag actctgtttg tagaattcac ggatcacctt 300

ttcaacatcg ctaagccaag gccaccctgg atgggtctgc taggtcctac catccaggct 360

gaggtttatg atacagtggt cattacactt aagaacatgg cttcccatcc tgtcagtctt 420

catgctgttg gtgtatccta ctggaaagct tctgagggag ctgaatatga tgatcagacc 480

agtcaaaggg agaaagaaga tgataaagtc ttccctggtg gaagccatac atatgtctgg 540

caggtcctga aagagaatgg tccaatggcc tctgacccac tgtgccttac ctactcatat 600

ctttctcatg tggacctggt aaaagacttg aattcaggcc tcattggagc cctactagta 660

tgtagagaag ggagtctggc caaggaaaag acacagacct tgcacaaatt tatactactt 720

tttgctgtat ttgatgaagg gaaaagttgg cactcagaaa caaagaactc cttgatgcag 780

gatagggatg ctgcatctgc tcgggcctgg cctaaaatgc acacagtcaa tggttatgta 840

aacaggtctc tgccaggtct gattggatgc cacaggaaat cagtctattg gcatgtgatt 900

ggaatgggca ccactcctga agtgcactca atattcctcg aaggtcacac atttcttgtg 960

aggaaccatc gccaggctag cttggaaatc tcgccaataa ctttccttac tgctcaaaca 1020

ctcttgatgg accttggaca gtttctactg ttttgtcata tctcttccca ccaacatgat 1080

ggcatggaag cttatgtcaa agtagacagc tgtccagagg aaccccaact acgaatgaaa 1140

aataatgaag aagcggaaga ctatgatgat gatcttactg attctgaaat ggatgtggtc 1200

aggtttgatg atgacaactc tccttccttt atccaaattc gctcagttgc caagaagcat 1260

cctaaaactt gggtacatta cattgctgct gaagaggagg actgggacta tgctccctta 1320

gtcctcgccc ccgatgacag aagttataaa agtcaatatt tgaacaatgg ccctcagcgg 1380

attggtagga agtacaaaaa agtccgattt atggcataca cagatgaaac ctttaagact 1440

cgtgaagcta ttcagcatga atcaggaatc ttgggacctt tactttatgg ggaagttgga 1500

gacacactgt tgattatatt taagaatcaa gcaagcagac catataacat ctaccctcac 1560

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gatgggccaa ctaaatcaga tcctcggtgc ctgacccgct attactctag tttcgttaat 1740

atggagagag atctagcttc aggactcatt ggccctctcc tcatctgcta caaagaatct 1800

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ggctatgttt ttgatagttt gcagttgtca gtttgtttgc atgaggtggc atactggtac 2040

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actactcttc agtcagatca agaggaaatc gattatgatg ataccatatc agttgaaatg 2460

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aagaaaacac gacactattt tattgctgca gtggagaggc tctgggatta tgggatgagt 2580

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ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

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caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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ggcgccggat cacctggggc cgaaacggcc gaacaaaaac tcatctcaga agaggatctg 4500

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<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Pro
20 25 30

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
35 40 45

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
50 55 60

Pro Ala Ser Ser Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe
65 70 75 80

```
Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe
                85                  90                  95

Thr Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly
            100                 105                 110

Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile
        115                 120                 125

Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly
    130                 135                 140

Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr
145                 150                 155                 160

Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His
                165                 170                 175

Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp
            180                 185                 190

Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys
        195                 200                 205

Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly
    210                 215                 220

Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255

Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300
```

```
Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
```

```
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735
```

```
Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
945                 950                 955                 960
```

```
Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
               965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170
```

```
Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                 1180                 1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                 1195                 1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                 1210                 1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                 1225                 1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                 1240                 1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                 1255                 1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                 1270                 1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                 1285                 1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                 1300                 1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                 1315                 1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                 1330                 1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                 1345                 1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                 1360                 1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
```

1370 1375 1380

Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser
1385 1390 1395

Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser
1400 1405 1410

Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val
1415 1420 1425

Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn
1430 1435 1440

Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro
1445 1450 1455

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
1460 1465 1470

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
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Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala
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Thr Gly His His His His His His
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<211> 4536
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gaggggacaa gcgaaagcgc tacgcctgag agtggccctg gctctgagcc agccacctcc 180

ggctctgaaa cccctgcctc gagcgacgca agatttcctc ctagagtgcc aaaatctttt 240

ccattcaaca cctcagtcgt gtacaaaaag actctgtttg tagaattcac ggatcacctt 300

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gaggtttatg atacagtggt cattacactt aagaacatgg cttcccatcc tgtcagtctt 420

catgctgttg gtgtatccta ctggaaagct tctgagggag ctgaatatga tgatcagacc 480

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<212> PRT
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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Pro Ala Gly
        35                  40                  45

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
    50                  55                  60

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala
65                  70                  75                  80

Ser Ser Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe
                85                  90                  95

Thr Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly
            100                 105                 110

Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile
        115                 120                 125

Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly
    130                 135                 140

Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr
145                 150                 155                 160

Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His
                165                 170                 175

Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp
            180                 185                 190

Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys
        195                 200                 205

Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly
    210                 215                 220

Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255
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Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480
```

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Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
```

```
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910
```

```
Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125
```

```
Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
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Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335
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Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
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Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ggcgcgccag gttctcctgc tggctccccc acctcaacag aagaggggac aagcgaaagc 180

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atggcactgt acaatctcta tccaggtgtt tttgagacag tggaaatgtt accatccaaa 3420

gctggaattt ggcgggtgga atgccttatt ggcgagcatc tacatgctgg gatgagcaca 3480

ctttttctgg tgtacagcaa taagtgtcag actcccctgg gaatggcttc tggacacatt 3540

agagattttc agattacagc ttcaggacaa tatggacagt gggccccaaa gctggccaga 3600

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cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

agttgcagca tgccattggg aatggagagt aaagcaatat cagatgcaca gattactgct 4020

tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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<210> 609
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<400> 609

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            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Gly Ala Pro Gly
    50                  55                  60

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
65                  70                  75                  80

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                85                  90                  95

Glu Thr Pro Ala Ser Ser Ile Ala Lys Pro Arg Pro Pro Trp Met Gly
            100                 105                 110

Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile
        115                 120                 125

Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly
    130                 135                 140

Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr
145                 150                 155                 160

Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His
                165                 170                 175

Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp
            180                 185                 190

Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys
        195                 200                 205
```

```
Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly
    210                 215                 220

Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255

Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430
```

```
Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655
```

```
His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
```

```
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080
```

```
Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290
```

```
Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500
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Thr Gly His His His His His His
    1505   1510

<210> 610
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

ggcgcgccag gttctcctgc tggctccccc acctcaacag aagaggggac aagcgaaagc   240

gctacgcctg agagtggccc tggctctgag ccagccacct ccggctctga aacccctgcc   300

tcgagcatcg ctaagccaag gccaccctgg atgggtctgc taggtcctac catccaggct   360

gaggtttatg atacagtggt cattacactt aagaacatgg cttcccatcc tgtcagtctt   420

catgctgttg gtgtatccta ctggaaagct tctgagggag ctgaatatga tgatcagacc   480

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caggtcctga aagagaatgg tccaatggcc tctgacccac tgtgccttac ctactcatat   600

ctttctcatg tggacctggt aaaagacttg aattcaggcc tcattggagc cctactagta   660

tgtagagaag ggagtctggc caaggaaaag acacagacct tgcacaaatt tatactactt   720

tttgctgtat ttgatgaagg gaaaagttgg cactcagaaa caaagaactc cttgatgcag   780

gatagggatg ctgcatctgc tcgggcctgg cctaaaatgc acacagtcaa tggttatgta   840

aacaggtctc tgccaggtct gattggatgc cacaggaaat cagtctattg gcatgtgatt   900

ggaatgggca ccactcctga agtgcactca atattcctcg aaggtcacac atttcttgtg   960

aggaaccatc gccaggctag cttggaaatc tcgccaataa ctttccttac tgctcaaaca   1020

ctcttgatgg accttggaca gtttctactg ttttgtcata tctcttccca ccaacatgat   1080

ggcatggaag cttatgtcaa agtagacagc tgtccagagg aaccccaact acgaatgaaa   1140

aataatgaag aagcggaaga ctatgatgat gatcttactg attctgaaat ggatgtggtc   1200

aggtttgatg atgacaactc tccttccttt atccaaattc gctcagttgc caagaagcat 1260

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accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

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<210> 611
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
115 120 125

Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
130 135 140

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Gln Thr
145 150 155 160

Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His

```
                165                 170                 175

Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp
            180                 185                 190

Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys
        195                 200                 205

Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly
    210                 215                 220

Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255

Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380
```

```
Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605
```

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Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830
```

```
Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
```

```
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245
```

```
Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455
```

```
Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470


Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485


Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500


Thr Gly  His His His His His  His
    1505                1510


<210> 612
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 612
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac      180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct      300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatgg cgcgccaggt      360

tctcctgctg gctcccccac ctcaacagaa gaggggacaa gcgaaagcgc tacgcctgag      420

agtggccctg gctctgagcc agccacctcc ggctctgaaa cccctgcctc gagccagacc      480

agtcaaaggg agaaagaaga tgataaagtc ttccctggtg gaagccatac atatgtctgg      540

caggtcctga aagagaatgg tccaatggcc tctgacccac tgtgccttac ctactcatat      600

ctttctcatg tggacctggt aaaagacttg aattcaggcc tcattggagc cctactagta      660

tgtagagaag ggagtctggc caaggaaaag acacagacct tgcacaaatt tatactactt      720

tttgctgtat ttgatgaagg gaaaagttgg cactcagaaa caaagaactc cttgatgcag      780

gatagggatg ctgcatctgc tcgggcctgg cctaaaatgc acacagtcaa tggttatgta      840
```

aacaggtctc tgccaggtct gattggatgc cacaggaaat cagtctattg gcatgtgatt 900

ggaatgggca ccactcctga agtgcactca atattcctcg aaggtcacac atttcttgtg 960

aggaaccatc gccaggctag cttggaaatc tcgccaataa ctttccttac tgctcaaaca 1020

ctcttgatgg accttggaca gtttctactg ttttgtcata tctcttccca ccaacatgat 1080

ggcatggaag cttatgtcaa agtagacagc tgtccagagg aaccccaact acgaatgaaa 1140

aataatgaag aagcggaaga ctatgatgat gatcttactg attctgaaat ggatgtggtc 1200

aggtttgatg atgacaactc tccttccttt atccaaattc gctcagttgc caagaagcat 1260

cctaaaactt gggtacatta cattgctgct gaagaggagg actgggacta tgctccctta 1320

gtcctcgccc ccgatgacag aagttataaa agtcaatatt tgaacaatgg ccctcagcgg 1380

attggtagga agtacaaaaa agtccgattt atggcataca cagatgaaac ctttaagact 1440

cgtgaagcta ttcagcatga atcaggaatc ttgggacctt tactttatgg ggaagttgga 1500

gacacactgt tgattatatt taagaatcaa gcaagcagac catataacat ctaccctcac 1560

ggaatcactg atgtccgtcc tttgtattca aggagattac caaaaggtgt aaaacatttg 1620

aaggattttc caattctgcc aggagaaata ttcaaatata aatggacagt gactgtagaa 1680

gatgggccaa ctaaatcaga tcctcggtgc ctgacccgct attactctag tttcgttaat 1740

atggagagag atctagcttc aggactcatt ggccctctcc tcatctgcta caaagaatct 1800

gtagatcaaa gaggaaacca gataatgtca gacaagagga atgtcatcct gttttctgta 1860

tttgatgaga accgaagctg gtacctcaca gagaatatac aacgctttct ccccaatcca 1920

gctggagtgc agcttgagga tccagagttc caagcctcca acatcatgca cagcatcaat 1980

ggctatgttt ttgatagttt gcagttgtca gtttgtttgc atgaggtggc atactggtac 2040

attctaagca ttggagcaca gactgacttc ctttctgtct tcttctctgg atataccttc 2100

aaacacaaaa tggtctatga agacacactc accctattcc cattctcagg agaaactgtc 2160

ttcatgtcga tggaaaaccc aggtctatgg attctggggt gccacaactc agactttcgg 2220

aacagaggca tgaccgcctt actgaaggtt tctagttgtg acaagaacac tggtgattat 2280

tacgaggaca gttatgaaga tatttcagca tacttgctga gtaaaaacaa tgccattgaa 2340

ccaagaagct tctctcaaaa cccaccagtc ttgaaacgcc atcaacggga aataactcgt 2400

actactcttc agtcagatca agaggaaatc gattatgatg ataccatatc agttgaaatg 2460

aagaaggaag attttgacat ttatgatgag gatgaaaatc agagcccccg cagctttcaa 2520

aagaaaacac gacactattt tattgctgca gtggagaggc tctgggatta tgggatgagt 2580

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gttgttttcc aggaatttac tgatggctcc tttactcagc ccttataccg tggagaacta 2700

aatgaacatt tgggactcct ggggccatat ataagagcag aagttgaaga taatatcatg 2760

gtaactttca gaaatcaggc ctctcgtccc tattccttct attctagcct tatttcttat 2820

gaggaagatc agaggcaagg agcagaacct agaaaaaact ttgtcaagcc taatgaaacc 2880

aaaacttact tttggaaagt gcaacatcat atggcaccca ctaaagatga gtttgactgc 2940

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gtaatggctc aggatcaaag gattcgatgg tatctgctca gcatgggcag caatgaaaac 3300

atccattcta ttcatttcag tggacatgtg ttcactgtac gaaaaaaaga ggagtataaa 3360

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cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

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tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

tgggtgcacc agattgccct gaggatggag gttctgggct gcgaggcaca ggacctctac 4440

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tcacctgcaa ccggtcatca tcaccatcac cattga 4536

<210> 613
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 613
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

```
Phe Pro Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
    130                 135                 140

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
145                 150                 155                 160

Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Gly Gly Ser His
                165                 170                 175

Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp
            180                 185                 190

Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys
        195                 200                 205

Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly
    210                 215                 220

Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255

Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
```

```
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560
```

```
Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780
```

```
Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800


Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815


Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830


Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845


Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860


Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880


Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895


Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910


Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925


Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940


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


Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975


Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990


Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005
```

```
Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
    1010                1015                1020

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
```

```
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410
```

```
Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                 1420                 1425


Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                 1435                 1440


Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                 1450                 1455


Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                 1465                 1470


Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                 1480                 1485


Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                 1495                 1500


Thr Gly  His His His His His  His
    1505                 1510
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<210> 614
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 614
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Gly Ala Pro Gly
            180                 185                 190

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
        195                 200                 205

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
    210                 215                 220

Glu Thr Pro Ala Ser Ser Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255

Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300
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Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
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Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
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Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
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Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
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Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
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Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
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Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
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Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
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Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
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Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
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Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
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Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
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Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
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Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
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Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
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Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
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Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
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Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
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Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
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Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
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Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
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Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
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Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
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Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
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Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
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Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
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Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
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Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
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Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
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Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
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Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
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Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
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Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
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Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
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Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
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Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
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Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
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Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
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Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
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Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
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Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro
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Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
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Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
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accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

tgggtgcacc agattgccct gaggatggag gttctgggct gcgaggcaca ggacctctac 4440

ggcgccggat cacctggggc cgaaacggcc gaacaaaaac tcatctcaga agaggatctg 4500

tcacctgcaa ccggtcatca tcaccatcac cattga 4536

<210> 617
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 617
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

```
Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Gly Ala Pro Gly Ser Pro Ala Gly
    210                 215                 220

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
225                 230                 235                 240

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala
                245                 250                 255
```

```
Ser Ser Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480
```

```
Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
```

```
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910
```

```
Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125
```

```
Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335
```

```
Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
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<210> 618
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 618
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttggg cgcgccaggt 660

tctcctgctg gctcccccac ctcaacagaa gaggggacaa gcgaaagcgc tacgcctgag 720

agtggccctg gctctgagcc agccacctcc ggctctgaaa cccctgcctc gagcatgcag 780

gatagggatg ctgcatctgc tcgggcctgg cctaaaatgc acacagtcaa tggttatgta 840

aacaggtctc tgccaggtct gattggatgc cacaggaaat cagtctattg gcatgtgatt 900

ggaatgggca ccactcctga agtgcactca atattcctcg aaggtcacac atttcttgtg 960

aggaaccatc gccaggctag cttggaaatc tcgccaataa ctttccttac tgctcaaaca 1020

ctcttgatgg accttggaca gtttctactg ttttgtcata tctcttccca ccaacatgat 1080

ggcatggaag cttatgtcaa agtagacagc tgtccagagg aaccccaact acgaatgaaa 1140

aataatgaag aagcggaaga ctatgatgat gatcttactg attctgaaat ggatgtggtc 1200

aggtttgatg atgacaactc tccttccttt atccaaattc gctcagttgc caagaagcat 1260

cctaaaactt gggtacatta cattgctgct gaagaggagg actgggacta tgctccctta 1320

gtcctcgccc ccgatgacag aagttataaa agtcaatatt tgaacaatgg ccctcagcgg 1380

attggtagga agtacaaaaa agtccgattt atggcataca cagatgaaac ctttaagact 1440

cgtgaagcta ttcagcatga atcaggaatc ttgggacctt tactttatgg ggaagttgga 1500

gacacactgt tgattatatt taagaatcaa gcaagcagac catataacat ctaccctcac 1560

ggaatcactg atgtccgtcc tttgtattca aggagattac caaaaggtgt aaaacatttg 1620

aaggattttc caattctgcc aggagaaata ttcaaatata aatggacagt gactgtagaa 1680

gatgggccaa ctaaatcaga tcctcggtgc ctgacccgct attactctag tttcgttaat 1740

atggagagag atctagcttc aggactcatt ggccctctcc tcatctgcta caaagaatct 1800

gtagatcaaa gaggaaacca gataatgtca gacaagagga atgtcatcct gttttctgta 1860

tttgatgaga accgaagctg gtacctcaca gagaatatac aacgctttct ccccaatcca 1920

gctggagtgc agcttgagga tccagagttc caagcctcca acatcatgca cagcatcaat 1980

ggctatgttt ttgatagttt gcagttgtca gtttgtttgc atgaggtggc atactggtac 2040

attctaagca ttggagcaca gactgacttc ctttctgtct tcttctctgg atataccttc 2100

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actactcttc agtcagatca agaggaaatc gattatgatg ataccatatc agttgaaatg 2460

aagaaggaag attttgacat ttatgatgag gatgaaaatc agagcccccg cagctttcaa 2520

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gttgttttcc aggaatttac tgatggctcc tttactcagc ccttataccg tggagaacta 2700

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cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

agttgcagca tgccattggg aatggagagt aaagcaatat cagatgcaca gattactgct 4020

tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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tcacctgcaa ccggtcatca tcaccatcac cattga 4536

<210> 619
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<400> 619
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro
225                 230                 235                 240

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                245                 250                 255

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430
```

```
Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655
```

```
His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
```

```
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080
```

```
Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                 1090                 1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                 1105                 1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                 1120                 1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                 1135                 1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                 1150                 1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                 1165                 1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                 1180                 1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                 1195                 1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                 1210                 1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                 1225                 1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                 1240                 1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                 1255                 1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                 1270                 1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                 1285                 1290
```

```
Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

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

Thr Gly His His His His His His
    1505   1510

<210> 620
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 620
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc   420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct   480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga   540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

gatgctgcat ctgctcgggc ctggcctaaa ggcgcgccag gttctcctgc tggctccccc   720

acctcaacag aagaggggac aagcgaaagc gctacgcctg agagtggccc tggctctgag   780

ccagccacct ccggctctga aacccctgcc tcgagcatgc acacagtcaa tggttatgta   840

aacaggtctc tgccaggtct gattggatgc cacaggaaat cagtctattg gcatgtgatt   900

ggaatgggca ccactcctga agtgcactca atattcctcg aaggtcacac atttcttgtg   960

aggaaccatc gccaggctag cttggaaatc tcgccaataa ctttccttac tgctcaaaca   1020

ctcttgatgg accttggaca gtttctactg ttttgtcata tctcttccca ccaacatgat   1080

ggcatggaag cttatgtcaa agtagacagc tgtccagagg aaccccaact acgaatgaaa   1140

aataatgaag aagcggaaga ctatgatgat gatcttactg attctgaaat ggatgtggtc   1200

aggtttgatg atgacaactc tccttccttt atccaaattc gctcagttgc caagaagcat 1260

cctaaaactt gggtacatta cattgctgct gaagaggagg actgggacta tgctccctta 1320

gtcctcgccc ccgatgacag aagttataaa agtcaatatt tgaacaatgg ccctcagcgg 1380

attggtagga agtacaaaaa agtccgattt atggcataca cagatgaaac ctttaagact 1440

cgtgaagcta ttcagcatga atcaggaatc ttgggacctt tactttatgg ggaagttgga 1500

gacacactgt tgattatatt taagaatcaa gcaagcagac catataacat ctaccctcac 1560

ggaatcactg atgtccgtcc tttgtattca aggagattac caaaaggtgt aaaacatttg 1620

aaggattttc caattctgcc aggagaaata ttcaaatata aatggacagt gactgtagaa 1680

gatgggccaa ctaaatcaga tcctcggtgc ctgacccgct attactctag tttcgttaat 1740

atggagagag atctagcttc aggactcatt ggccctctcc tcatctgcta caaagaatct 1800

gtagatcaaa gaggaaacca gataatgtca gacaagagga atgtcatcct gttttctgta 1860

tttgatgaga accgaagctg gtacctcaca gagaatatac aacgctttct ccccaatcca 1920

gctggagtgc agcttgagga tccagagttc caagcctcca acatcatgca cagcatcaat 1980

ggctatgttt ttgatagttt gcagttgtca gtttgtttgc atgaggtggc atactggtac 2040

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aaacacaaaa tggtctatga agacacactc accctattcc cattctcagg agaaactgtc 2160

ttcatgtcga tggaaaaccc aggtctatgg attctggggt gccacaactc agactttcgg 2220

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tacgaggaca gttatgaaga tatttcagca tacttgctga gtaaaaacaa tgccattgaa 2340

ccaagaagct tctctcaaaa cccaccagtc ttgaaacgcc atcaacggga aataactcgt 2400

actactcttc agtcagatca agaggaaatc gattatgatg ataccatatc agttgaaatg 2460

aagaaggaag attttgacat ttatgatgag gatgaaaatc agagcccccg cagctttcaa 2520

aagaaaacac gacactattt tattgctgca gtggagaggc tctgggatta tgggatgagt 2580

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gtaactttca gaaatcaggc ctctcgtccc tattccttct attctagcct tatttcttat 2820

gaggaagatc agaggcaagg agcagaacct agaaaaaact ttgtcaagcc taatgaaacc 2880

aaaacttact tttggaaagt gcaacatcat atggcaccca ctaaagatga gtttgactgc 2940

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cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

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caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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tcacctgcaa ccggtcatca tcaccatcac cattga 4536

<210> 621
<211> 1514
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 621
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu

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                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gly Ala Pro
                325                 330                 335

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
            340                 345                 350

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        355                 360                 365

Ser Glu Thr Pro Ala Ser Ser Val Gln Leu Gln Leu Arg Met Lys Asn
    370                 375                 380
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Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met
385                 390                 395                 400

Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile
                405                 410                 415

Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala
            420                 425                 430

Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp
        435                 440                 445

Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile
    450                 455                 460

Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr
465                 470                 475                 480

Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro
                485                 490                 495

Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn
            500                 505                 510

Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val
        515                 520                 525

Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys
    530                 535                 540

Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val
545                 550                 555                 560

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

Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu
            580                 585                 590

Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly
        595                 600                 605
```

```
Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe
    610                 615                 620

Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu
625                 630                 635                 640

Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser
                645                 650                 655

Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu
            660                 665                 670

Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly
        675                 680                 685

Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys
    690                 695                 700

His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly
705                 710                 715                 720

Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly
                725                 730                 735

Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys
            740                 745                 750

Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr
        755                 760                 765

Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro
    770                 775                 780

Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu
785                 790                 795                 800

Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp
                805                 810                 815

Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp
            820                 825                 830
```

```
Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His
        835                 840                 845

Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser
    850                 855                 860

Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln
865                 870                 875                 880

Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln
                885                 890                 895

Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro
            900                 905                 910

Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn
        915                 920                 925

Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu
    930                 935                 940

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

Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro
                965                 970                 975

Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val
            980                 985                 990

Asp Leu Glu Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
        995                 1000                1005

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1010                1015                1020

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1025                1030                1035

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
```

```
    1040                1045                1050

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1055                1060                1065

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1070                1075                1080

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1085                1090                1095

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1100                1105                1110

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1115                1120                1125

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1130                1135                1140

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1145                1150                1155

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1160                1165                1170

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1175                1180                1185

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1190                1195                1200

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1205                1210                1215

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1220                1225                1230

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1235                1240                1245
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```
Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1250                1255                1260

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1265                1270                1275

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1280                1285                1290

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1295                1300                1305

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1310                1315                1320

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1325                1330                1335

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1340                1345                1350

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1355                1360                1365

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1370                1375                1380

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1385                1390                1395

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1400                1405                1410

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1415                1420                1425

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1430                1435                1440

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1445                1450                1455
```

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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1460                1465                1470


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1475                1480                1485


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1490                1495                1500


Ser Pro  Ala Thr Gly His His  His His His His
    1505                1510


<210> 622
<211> 4545
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac      180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct      300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa      360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc      420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct      480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga      540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct       600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg      660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg      720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg      780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac      840
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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gatgtggtca ggtttgatga tgacaactct ccttccttta tccaaattcg ctcagttgcc 1260

aagaagcatc ctaaaacttg ggtacattac attgctgctg aagaggagga ctgggactat 1320

gctcccttag tcctcgcccc cgatgacaga agttataaaa gtcaatattt gaacaatggc 1380

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<210> 623
<211> 1514
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

```
Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
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            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Ser Val Ala Gly Ala Pro Gly Ser Pro
    370                 375                 380

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
385                 390                 395                 400

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                405                 410                 415

Pro Ala Ser Ser Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala
            420                 425                 430

Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp
        435                 440                 445

Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile
    450                 455                 460

Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr
465                 470                 475                 480

Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro
                485                 490                 495

Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn
            500                 505                 510

Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val
        515                 520                 525

Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys
    530                 535                 540

Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val
545                 550                 555                 560
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Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg
                565                 570                 575

Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu
            580                 585                 590

Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly
        595                 600                 605

Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe
    610                 615                 620

Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu
625                 630                 635                 640

Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser
                645                 650                 655

Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu
            660                 665                 670

Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly
        675                 680                 685

Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys
    690                 695                 700

His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly
705                 710                 715                 720

Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly
                725                 730                 735

Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys
            740                 745                 750

Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr
        755                 760                 765

Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro
    770                 775                 780
```

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Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu
785                 790                 795                 800


Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp
                805                 810                 815


Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp
            820                 825                 830


Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His
        835                 840                 845


Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser
    850                 855                 860


Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln
865                 870                 875                 880


Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln
                885                 890                 895


Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro
            900                 905                 910


Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn
        915                 920                 925


Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu
    930                 935                 940


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


Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro
                965                 970                 975


Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val
            980                 985                 990


Asp Leu Glu Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
        995                 1000                1005
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1010                1015                1020

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1025                1030                1035

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1040                1045                1050

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1055                1060                1065

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1070                1075                1080

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1085                1090                1095

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1100                1105                1110

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1115                1120                1125

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1130                1135                1140

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1145                1150                1155

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1160                1165                1170

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1175                1180                1185

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1190                1195                1200

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
```

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    1205                1210                1215

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1220                1225                1230

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1235                1240                1245

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1250                1255                1260

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1265                1270                1275

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1280                1285                1290

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1295                1300                1305

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1310                1315                1320

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1325                1330                1335

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1340                1345                1350

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1355                1360                1365

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1370                1375                1380

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1385                1390                1395

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1400                1405                1410
```

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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1415                 1420                 1425

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1430                 1435                 1440

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1445                 1450                 1455

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1460                 1465                 1470

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1475                 1480                 1485

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1490                 1495                 1500

Ser Pro  Ala Thr Gly His His  His His His His
    1505                 1510
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<210> 624
<211> 4545
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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<210> 625
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
                405                 410                 415

Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
            420                 425                 430

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
```

```
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735
```

```
Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
945                 950                 955                 960
```

```
Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
               965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170
```

```
Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                 1180                 1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                 1195                 1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                 1210                 1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                 1225                 1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                 1240                 1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                 1255                 1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                 1270                 1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                 1285                 1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                 1300                 1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                 1315                 1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                 1330                 1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                 1345                 1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                 1360                 1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
```

```
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
```

<210> 626
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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cgtgaagcta ttcagcatga atcaggaatc ttgggacctt tactttatgg ggaagttgga 1500

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ggctatgttt ttgatagttt gcagttgtca gtttgtttgc atgaggtggc atactggtac 2040

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gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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<211> 1511
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

```
Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
```

```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gly Ala Pro Gly Ser Pro
        435                 440                 445

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
    450                 455                 460

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
465                 470                 475                 480
```

```
Pro Ala Ser Ser Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
```

```
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910
```

```
Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125
```

```
Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335
```

```
Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
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Thr Gly  His His His His His  His
    1505                1510
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<210> 628
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattggcg cgccaggttc tcctgctggc tcccccacct caacagaaga ggggacaagc 1380

gaaagcgcta cgcctgagag tggccctggc tctgagccag ccacctccgg ctctgaaacc 1440

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tttgatgaga accgaagctg gtacctcaca gagaatatac aacgctttct ccccaatcca 1920

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<211> 1514
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

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Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Ala Pro
                485                 490                 495

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
            500                 505                 510

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        515                 520                 525

Ser Glu Thr Pro Ala Ser Ser Leu Pro Lys Gly Val Lys His Leu Lys
    530                 535                 540

Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val
545                 550                 555                 560

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

Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu
            580                 585                 590

Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly
        595                 600                 605

Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe
    610                 615                 620

Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu
625                 630                 635                 640

Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser
                645                 650                 655
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Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu
            660                 665                 670

Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly
        675                 680                 685

Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys
    690                 695                 700

His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly
705                 710                 715                 720

Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly
                725                 730                 735

Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys
            740                 745                 750

Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr
        755                 760                 765

Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro
    770                 775                 780

Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu
785                 790                 795                 800

Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp
                805                 810                 815

Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp
            820                 825                 830

Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His
        835                 840                 845

Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser
    850                 855                 860

Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln
```

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865                 870                 875                 880

Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln
                885                 890                 895

Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro
            900                 905                 910

Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn
        915                 920                 925

Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu
    930                 935                 940

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

Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro
                965                 970                 975

Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val
            980                 985                 990

Asp Leu Glu Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
        995                 1000                1005

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1010                1015                1020

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1025                1030                1035

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1040                1045                1050

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1055                1060                1065

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1070                1075                1080
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1085                1090                1095

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1100                1105                1110

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1115                1120                1125

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1130                1135                1140

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1145                1150                1155

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1160                1165                1170

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1175                1180                1185

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1190                1195                1200

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1205                1210                1215

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1220                1225                1230

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1235                1240                1245

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1250                1255                1260

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1265                1270                1275

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1280                1285                1290
```

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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1295                1300                1305

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1310                1315                1320

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1325                1330                1335

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1340                1345                1350

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1355                1360                1365

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1370                1375                1380

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1385                1390                1395

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1400                1405                1410

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1415                1420                1425

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1430                1435                1440

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1445                1450                1455

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1460                1465                1470

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1475                1480                1485

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1490                1495                1500
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Ser Pro Ala Thr Gly His His His His His His
    1505   1510

<210> 630
<211> 4545
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

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catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

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gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat   1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt   1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa   1140

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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agcatcaatg gctatgtttt tgatagtttg cagttgtcag tttgtttgca tgaggtggca 2040

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gaaactgtct tcatgtcgat ggaaaaccca ggtctatgga ttctggggtg ccacaactca 2220

gactttcgga acagaggcat gaccgcctta ctgaaggttt ctagttgtga caagaacact 2280

ggtgattatt acgaggacag ttatgaagat atttcagcat acttgctgag taaaaacaat 2340

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ataactcgta ctactcttca gtcagatcaa gaggaaatcg attatgatga taccatatca 2460

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caagtgacag tacaggaatt tgctctgttt ttcaccatct ttgatgagac caaaagctgg 3120

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<210> 631
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 631
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu

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                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro
        515                 520                 525

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605
```

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Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830
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Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
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    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245
```

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Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455
```

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
    1460   1465   1470

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
    1475   1480   1485

Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala
    1490   1495   1500

Thr Gly His His His His His His
    1505   1510

<210> 632
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 632
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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<210> 633
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
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            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro Gly Ser Pro Ala Gly Ser
        595                 600                 605

Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
    610                 615                 620

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser
625                 630                 635                 640

Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780
```

```
Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800


Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815


Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830


Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845


Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860


Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880


Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895


Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910


Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925


Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940


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


Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975


Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990


Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005
```

```
Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
    1010                1015                1020

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
```

```
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410
```

```
Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                 1420                 1425


Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                 1435                 1440


Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                 1450                 1455


Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                 1465                 1470


Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                 1480                 1485


Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                 1495                 1500


Thr Gly  His His His His His  His
    1505                 1510
```

<210> 634
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctggc 1800

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ggctatgttt ttgatagttt gcagttgtca gtttgtttgc atgaggtggc atactggtac 2040

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tacgaggaca gttatgaaga tatttcagca tacttgctga gtaaaaacaa tgccattgaa 2340

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actactcttc agtcagatca agaggaaatc gattatgatg ataccatatc agttgaaatg 2460

aagaaggaag attttgacat ttatgatgag gatgaaaatc agagcccccg cagctttcaa 2520

aagaaaacac gacactattt tattgctgca gtggagaggc tctgggatta tgggatgagt 2580

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aatgaacatt tgggactcct ggggccatat ataagagcag aagttgaaga taatatcatg 2760

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cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

agttgcagca tgccattggg aatggagagt aaagcaatat cagatgcaca gattactgct 4020

tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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<210> 635
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 635
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
```

```
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Gly Ala Pro Gly Ser Pro Ala
705                 710                 715                 720

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
                725                 730                 735
```

```
Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            740                 745                 750

Ala Ser Ser Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
945                 950                 955                 960
```

```
Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
               965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170
```

```
Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                 1180                 1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                 1195                 1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                 1210                 1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                 1225                 1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                 1240                 1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                 1255                 1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                 1270                 1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                 1285                 1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                 1300                 1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                 1315                 1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                 1330                 1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                 1345                 1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                 1360                 1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
```

1370 1375 1380

Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser
1385 1390 1395

Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser
1400 1405 1410

Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val
1415 1420 1425

Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn
1430 1435 1440

Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro
1445 1450 1455

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
1460 1465 1470

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
1475 1480 1485

Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala
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Thr Gly His His His His His His
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<210> 636
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

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<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
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Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
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```
Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
```

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    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910
```

```
Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125
```

```
Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335
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Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
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Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
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<210> 638
<211> 4536
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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gctggaattt ggcgggtgga atgccttatt ggcgagcatc tacatgctgg gatgagcaca 3480

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cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

agttgcagca tgccattggg aatggagagt aaagcaatat cagatgcaca gattactgct 4020

tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

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<210> 639
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<400> 639

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205
```

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
```

```
Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
```

```
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080
```

```
Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290
```

```
Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500
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Thr Gly His His His His His His
    1505   1510

<210> 640
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

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ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

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<210> 641
<211> 1763
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu

```
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
```

```
Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
```

```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Ser Glu
            740                 745                 750

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        755                 760                 765

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    770                 775                 780

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
785                 790                 795                 800

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                805                 810                 815

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            820                 825                 830
```

```
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        835                 840                 845

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    850                 855                 860

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
865                 870                 875                 880

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                885                 890                 895

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            900                 905                 910

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        915                 920                 925

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    930                 935                 940

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
945                 950                 955                 960

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                965                 970                 975

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            980                 985                 990

Glu Pro Ser Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
        995                 1000                1005

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1010                1015                1020

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Arg Glu Ile  Thr Arg Thr
```

```
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245
```

```
Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1445                1450                1455
```

```
Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                 1465                 1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                 1480                 1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                 1495                 1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                 1510                 1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                 1525                 1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                 1540                 1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                 1555                 1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                 1570                 1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                 1585                 1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                 1600                 1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                 1615                 1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                 1630                 1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                 1645                 1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                 1660                 1665
```

```
His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Gly  Ser Pro Gly Ala Glu  Thr Ala Glu
    1730                1735                1740

Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser Pro Ala  Thr Gly His
    1745                1750                1755

His His  His His His
    1760
```

<210> 642
<211> 5292
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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gaacctagaa aaaactttgt caagcctaat gaaaccaaaa cttacttttg gaaagtgcaa 3660

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accatctttg atgagaccaa aagctggtac ttcactgaaa atatggaaag aaactgcagg 3900

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atggaggttc tgggctgcga ggcacaggac ctctacggcg ccggatcacc tggggccgaa 5220

acggccgaac aaaaactcat ctcagaagag gatctgtcac ctgcaaccgg tcatcatcac 5280

catcaccatt ga 5292

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<211> 1763
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
```

```
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655


Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Ser Glu
            740                 745                 750


Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        755                 760                 765


Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    770                 775                 780


Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
785                 790                 795                 800


Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                805                 810                 815


Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            820                 825                 830


Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        835                 840                 845
```

```
Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    850                 855                 860

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
865                 870                 875                 880

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                885                 890                 895

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            900                 905                 910

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        915                 920                 925

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    930                 935                 940

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
945                 950                 955                 960

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                965                 970                 975

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            980                 985                 990

Glu Pro Ser Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
        995                 1000                1005

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1010                1015                1020

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065
```

```
Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
```

```
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470
```

```
Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680
```

```
Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Gly  Ser Pro Gly Ala Glu  Thr Ala Glu
    1730                1735                1740

Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser Pro Ala  Thr Gly His
    1745                1750                1755

His His  His His His
    1760
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<210> 644
<211> 5292
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 644

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac      180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct      300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa      360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc      420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct      480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga      540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct       600
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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<210> 645
<211> 1514
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
```

```
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Gly Ala Pro
            820                 825                 830

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
        835                 840                 845

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    850                 855                 860
```

```
Ser Glu Thr Pro Ala Ser Ser Arg Ala Gln Ser Gly Ser Val Pro Gln
865                 870                 875                 880


Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln
                885                 890                 895


Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro
            900                 905                 910


Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn
        915                 920                 925


Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu
    930                 935                 940


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


Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro
                965                 970                 975


Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val
            980                 985                 990


Asp Leu Glu Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
        995                 1000                1005


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1010                1015                1020


Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1025                1030                1035


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1040                1045                1050


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1055                1060                1065


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1070                1075                1080
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1085                1090                1095

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1100                1105                1110

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1115                1120                1125

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1130                1135                1140

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1145                1150                1155

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1160                1165                1170

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1175                1180                1185

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1190                1195                1200

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1205                1210                1215

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1220                1225                1230

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1235                1240                1245

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1250                1255                1260

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1265                1270                1275

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1280                1285                1290
```

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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1295                1300                1305

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1310                1315                1320

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1325                1330                1335

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1340                1345                1350

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1355                1360                1365

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1370                1375                1380

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1385                1390                1395

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1400                1405                1410

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1415                1420                1425

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1430                1435                1440

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1445                1450                1455

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1460                1465                1470

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1475                1480                1485

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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<210> 646
<211> 4545
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
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Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
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Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
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Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro
            900                 905                 910

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        915                 920                 925

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
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Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
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Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
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Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
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Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
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Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
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Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
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Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
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Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
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Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
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Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455
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Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
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Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485


Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
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Thr Gly  His His His His His  His
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<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val

```
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780
```

```
Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800


Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815


Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830


Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845


Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860


Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Gly Ala Pro Gly
            900                 905                 910


Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
        915                 920                 925


Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
    930                 935                 940


Glu Thr Pro Ala Ser Ser Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
945                 950                 955                 960


Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975


Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990


Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
```

995 1000 1005

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

Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr
1025 1030 1035

Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile
1040 1045 1050

Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala
1055 1060 1065

Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala
1070 1075 1080

Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn
1085 1090 1095

Glu Asn Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val
1100 1105 1110

Arg Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro
1115 1120 1125

Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly Ile
1130 1135 1140

Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His Ala Gly Met
1145 1150 1155

Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro Leu
1160 1165 1170

Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile Thr Ala Ser
1175 1180 1185

Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg Leu His Tyr
1190 1195 1200

```
Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                 1210                 1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                 1225                 1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                 1240                 1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                 1255                 1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                 1270                 1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                 1285                 1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                 1300                 1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                 1315                 1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                 1330                 1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                 1345                 1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                 1360                 1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                 1375                 1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                 1390                 1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                 1405                 1410
```

Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val
1415 1420 1425

Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn
1430 1435 1440

Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro
1445 1450 1455

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
1460 1465 1470

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
1475 1480 1485

Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala
1490 1495 1500

Thr Gly His His His His His His
1505 1510

<210> 650
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

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ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 2580

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gctggaattt ggcgggtgga atgccttatt ggcgagcatc tacatgctgg gatgagcaca 3480

ctttttctgg tgtacagcaa taagtgtcag actcccctgg gaatggcttc tggacacatt 3540

agagattttc agattacagc ttcaggacaa tatggacagt gggccccaaa gctggccaga 3600

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cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

agttgcagca tgccattggg aatggagagt aaagcaatat cagatgcaca gattactgct 4020

tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
```

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    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
    930                 935                 940

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
945                 950                 955                 960
```

```
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Asp
               965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
```

```
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365
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Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
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Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
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<210> 652
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact actttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

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agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

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cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

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tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

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<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 653
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
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Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
```

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465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685
```

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Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910
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```
Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Gly Ala Pro Gly Ser Pro Ala Gly Ser
                965                 970                 975


Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
            980                 985                 990


Gly Pro Gly Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Ala Ser
        995                 1000                1005


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


Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035


Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050


Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065


Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080


Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095


Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110


Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125
```

```
Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
```

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    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
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<210> 654
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 2580

catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 2640

ttcagaaatc aggcctctcg tccctattcc ttctattcta gccttatttc ttatgaggaa 2700

gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 2760

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 2820

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 2880

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gaaaatatgg aaagaaactg cagggctccc tgcaatatcc agatggaaga tcccactttt 3180

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tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

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tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

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ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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ggcgccggat cacctggggc cgaaacggcc gaacaaaaac tcatctcaga agaggatctg 4500

tcacctgcaa ccggtcatca tcaccatcac cattga 4536

<210> 655
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 655
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
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Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
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                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860
```

```
Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Gly Ala Pro  Gly Ser Pro
        995                 1000                1005


Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala
    1010                1015                1020


Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1025                1030                1035


Glu Thr  Pro Ala Ser Ser Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1040                1045                1050


Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065


Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080
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Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290
```

```
Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
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1490 1495 1500

Thr Gly His His His His His His
1505 1510

<210> 656
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

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cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

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gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 2760

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 2820

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tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

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gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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<210> 657
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 657
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400


Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415


Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430


Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445


Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460


Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480


Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495


His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510


Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525


Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540


Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560


Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575


Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590


Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
```

```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
```

```
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
        995                 1000                1005

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1010                1015                1020

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1025                1030                1035
```

```
Thr Ser  Gly Ser Glu Thr Pro  Ala Ser Ser Ala Pro  Cys Asn Ile
    1040                1045                1050

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1055                1060                1065

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1070                1075                1080

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245
```

```
Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455
```

```
Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470


Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485


Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500


Thr Gly  His His His His His  His
    1505                1510


<210> 658
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 658
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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc      120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac      180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct      300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa      360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc      420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct      480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga      540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct       600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg      660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg      720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg      780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac      840
```

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

gtgcagcttg aggatccaga gttccaagcc tccaacatca tgcacagcat caatggctat 1860

gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

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aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

tcgatggaaa acccaggtct atggattctg gggtgccaca actcagactt tcggaacaga 2100

ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

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catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 2640

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cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

agttgcagca tgccattggg aatggagagt aaagcaatat cagatgcaca gattactgct 4020

tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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<210> 659
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 659
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val

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        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780
```

```
Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800


Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815


Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830


Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845


Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860


Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
```

995 1000 1005

Cys Asn Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
1010 1015 1020

Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
1025 1030 1035

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Ile
1040 1045 1050

Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala
1055 1060 1065

Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala
1070 1075 1080

Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn
1085 1090 1095

Glu Asn Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val
1100 1105 1110

Arg Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro
1115 1120 1125

Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly Ile
1130 1135 1140

Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His Ala Gly Met
1145 1150 1155

Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro Leu
1160 1165 1170

Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile Thr Ala Ser
1175 1180 1185

Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg Leu His Tyr
1190 1195 1200

```
Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                 1210                 1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                 1225                 1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                 1240                 1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                 1255                 1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                 1270                 1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                 1285                 1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                 1300                 1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                 1315                 1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                 1330                 1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                 1345                 1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                 1360                 1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                 1375                 1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                 1390                 1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                 1405                 1410
```

```
Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
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<210> 660
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 660

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac      180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct      300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa      360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc      420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct      480
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gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

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caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

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<210> 661
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
```

```
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960
```

```
Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
               965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gly Ala  Pro Gly Ser Pro Ala  Gly Ser Pro
    1040                1045                1050

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1055                1060                1065

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Ala
    1070                1075                1080

Ser Ser  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1085                1090                1095

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1100                1105                1110

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1115                1120                1125

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1130                1135                1140

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1145                1150                1155

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
```

```
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365
```

```
Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
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Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
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<210> 662
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

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atggcactgt acaatctcta tccaggtgtt tttgagacag tggaaatgtt accatccaaa 3420

gctggaattt ggcgggtgga atgccttatt ggcgagcatc tacatgctgg gatgagcaca 3480

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cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

agttgcagca tgccattggg aatggagagt aaagcaatat cagatgcaca gattactgct 4020

tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

tgggtgcacc agattgccct gaggatggag gttctgggct gcgaggcaca ggacctctac 4440

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tcacctgcaa ccggtcatca tcaccatcac cattga 4536

<210> 663
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 663
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
```

```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
```

```
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685
```

```
Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910
```

```
Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Gly Ala Pro
    1115                1120                1125
```

```
Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1130                1135                1140

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1145                1150                1155

Ser Gly  Ser Glu Thr Pro Ala  Ser Ser Lys Cys Gln  Thr Pro Leu
    1160                1165                1170

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1175                1180                1185

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1190                1195                1200

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
```

```
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
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<210> 664
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 664
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

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cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

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gggacaagcg aaagcgctac gcctgagagt ggccctggct ctgagccagc cacctccggc 3480

tctgaaaccc ctgcctcgag caagtgtcag actcccctgg gaatggcttc tggacacatt 3540

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tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

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tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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ggcgccggat cacctggggc cgaaacggcc gaacaaaaac tcatctcaga agaggatctg 4500

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<210> 665
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 665
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
```

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                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860
```

```
Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050


Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065


Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080
```

```
Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Gly  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1175                1180                1185

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1190                1195                1200

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Ala Ser  Ser Ser Trp
    1205                1210                1215

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1220                1225                1230

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1235                1240                1245

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290
```

```
Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
```

1490 1495 1500

Thr Gly His His His His His His
1505 1510

<210> 666
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 666
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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

gtgcagcttg aggatccaga gttccaagcc tccaacatca tgcacagcat caatggctat 1860

gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

agcattggag cacagactga cttccttttct gtcttcttct ctggatatac cttcaaacac 1980

aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

tcgatggaaa acccaggtct atggattctg gggtgccaca actcagactt tcggaacaga 2100

ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 2580

catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 2640

ttcagaaatc aggcctctcg tccctattcc ttctattcta gccttatttc ttatgaggaa 2700

gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 2760

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 2820

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 2880

cttctggtct gccacactaa cacactgaac cctgctcatg ggagacaagt gacagtacag 2940

gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3000

atggaaagaa actgcagggc tccctgcaat atccagatgg aagatcccac ttttaaagag 3060

aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 3120

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 3180

tctattcatt tcagtggaca tgtgttcact gtacgaaaaa aagaggagta taaaatggca 3240

ctgtacaatc tctatccagg tgtttttgag acagtggaaa tgttaccatc caaagctgga 3300

atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 3360

ctggtgtaca gcaataagtg tcagactccc ctgggaatgg cttctggaca cattagagat 3420

tttcagatta cagcttcagg acaatatgga cagtgggccc caaagctggc cagacttcat 3480

tattccggat caatcaatgc ctggagcacc aaggagccct ttggcgcgcc aggttctcct 3540

gctggctccc ccacctcaac agaagagggg acaagcgaaa gcgctacgcc tgagagtggc 3600

cctggctctg agccagccac ctccggctct gaaacccctg cctcgagctc ttggatcaag 3660

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ttctccagcc tctacatctc tcagtttatc atcatgtata gtcttgatgg gaagaagtgg 3780

cagacttatc gaggaaattc cactggaacc ttaatggtct tctttggcaa tgtggattca 3840

tctgggataa aacacaatat ttttaaccct ccaattattg ctcgatacat ccgtttgcac 3900

ccaactcatt atagcattcg cagcactctt cgcatggagt tgatgggctg tgatttaaat 3960

agttgcagca tgccattggg aatggagagt aaagcaatat cagatgcaca gattactgct 4020

tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

tgggtgcacc agattgccct gaggatggag gttctgggct gcgaggcaca ggacctctac 4440

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tcacctgcaa ccggtcatca tcaccatcac cattga 4536

<210> 667
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 667
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
```

```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
```

```
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Gly
    1205                1210                1215

Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1220                1225                1230

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1235                1240                1245
```

```
Ala Thr  Ser Gly Ser Glu Thr  Pro Ala Ser Ser Trp  Gln Thr Tyr
    1250                1255                1260

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                1270                1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                1285                1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                1300                1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455
```

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
    1460   1465   1470

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
    1475   1480   1485

Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala
    1490   1495   1500

Thr Gly His His His His His His
    1505   1510

<210> 668
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 668
gccaccagaa gatactacct gggtgcagtg gaactgtcat gggactatat gcaaagtgat 60

ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

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<213> Artificial Sequence

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val

```
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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
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Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780
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Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800


Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815


Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830


Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845


Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860


Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
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Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu
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Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met
1040 1045 1050

Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His Val
1055 1060 1065

Phe Thr Val Arg Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn
1070 1075 1080

Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys
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Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His
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Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1115 1120 1125

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
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Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1145 1150 1155

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
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Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
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Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Ala Pro Gly  Ser Pro Ala
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Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr
    1235                 1240                 1245

Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1250                 1255                 1260

Thr Pro  Ala Ser Ser Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1265                 1270                 1275

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1280                 1285                 1290

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1295                 1300                 1305

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
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Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                 1330                 1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
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Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                 1360                 1365

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
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Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
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Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
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Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
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Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
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Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
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Thr Gly  His His His His His  His
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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 671
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
```

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    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960
```

```
Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
               965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
```

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    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Gly
    1265                1270                1275

Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1280                1285                1290

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1295                1300                1305

Ala Thr  Ser Gly Ser Glu Thr  Pro Ala Ser Ser Asn  Ser Cys Ser
    1310                1315                1320

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1325                1330                1335

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1340                1345                1350

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1355                1360                1365
```

```
Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1490                1495                1500

Thr Gly  His His His His His  His
    1505                1510
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<210> 672
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 672
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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact actttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

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gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

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aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

tcgatggaaa acccaggtct atggattctg gggtgccaca actcagactt tcggaacaga 2100

ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 2580

catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 2640

ttcagaaatc aggcctctcg tccctattcc ttctattcta gccttatttc ttatgaggaa 2700

gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 2760

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 2820

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 2880

cttctggtct gccacactaa cacactgaac cctgctcatg ggagacaagt gacagtacag 2940

gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3000

atggaaagaa actgcagggc tccctgcaat atccagatgg aagatcccac ttttaaagag 3060

aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 3120

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 3180

tctattcatt tcagtggaca tgtgttcact gtacgaaaaa aagaggagta taaaatggca 3240

ctgtacaatc tctatccagg tgtttttgag acagtggaaa tgttaccatc caaagctgga 3300

atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 3360

ctggtgtaca gcaataagtg tcagactccc ctgggaatgg cttctggaca cattagagat 3420

tttcagatta cagcttcagg acaatatgga cagtgggccc caaagctggc cagacttcat 3480

tattccggat caatcaatgc ctggagcacc aaggagccct tttcttggat caaggtggat 3540

ctgttggcac caatgattat tcacggcatc aagacccagg gtgcccgtca gaagttctcc 3600

agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 3660

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 3720

ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 3780

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aggcgcgcca 3840

ggttctcctg ctggctcccc cacctcaaca gaagagggga caagcgaaag cgctacgcct 3900

gagagtggcc ctggctctga gccagccacc tccggctctg aaacccctgc ctcgagcaat 3960

agttgcagca tgccattggg aatggagagt aaagcaatat cagatgcaca gattactgct 4020

tcatcctact ttaccaatat gtttgccacc tggtctcctt caaaagctcg acttcacctc 4080

caagggagga gtaatgcctg gagacctcag gtgaataatc caaaagagtg gctgcaagtg 4140

gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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<210> 673
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 673
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

```
Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
```

```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
```

```
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685
```

```
Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910
```

```
Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050


Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065


Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080


Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095


Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110


Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125
```

```
Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gly  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1295                1300                1305

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1310                1315                1320

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Ala Ser  Ser Gln Ile
```

1325 1330 1335

Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr Trp Ser Pro
1340 1345 1350

Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp Arg
1355 1360 1365

Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val Asp Phe Gln
1370 1375 1380

Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser
1385 1390 1395

Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser
1400 1405 1410

Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val
1415 1420 1425

Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn
1430 1435 1440

Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro
1445 1450 1455

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
1460 1465 1470

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
1475 1480 1485

Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala
1490 1495 1500

Thr Gly His His His His His His
1505 1510

<210> 674
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 674
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

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gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

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gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 2580

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gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 2760

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 2820

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 2880

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gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3000

atggaaagaa actgcagggc tccctgcaat atccagatgg aagatcccac ttttaaagag 3060

aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 3120

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 3180

tctattcatt tcagtggaca tgtgttcact gtacgaaaaa aagaggagta taaaatggca 3240

ctgtacaatc tctatccagg tgtttttgag acagtggaaa tgttaccatc caaagctgga 3300

atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 3360

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ctgttggcac caatgattat tcacggcatc aagacccagg gtgcccgtca gaagttctcc 3600

agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 3660

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 3720

ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 3780

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 3840

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gacttccaga agacaatgaa agtcacagga gtaactactc agggagtaaa atctctgctt 4200

accagcatgt atgtgaagga gttcctcatc tccagcagtc aagatggcca tcagtggact 4260

ctctttttc agaatggcaa agtaaaggtt tttcagggaa atcaagactc cttcacacct 4320

gtggtgaact ctctagaccc accgttactg actcgctacc ttcgaattca cccccagagt 4380

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tcacctgcaa ccggtcatca tcaccatcac cattga 4536

<210> 675
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 675
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
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Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
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                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860
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Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050


Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065


Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Gly Ala  Pro Gly Ser
    1325                1330                1335

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1340                1345                1350

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1355                1360                1365

Ser Glu  Thr Pro Ala Ser Ser  Glu Trp Leu Gln Val  Asp Phe Gln
    1370                1375                1380

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1385                1390                1395

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1400                1405                1410

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1460                1465                1470

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
    1475                1480                1485

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
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1490 1495 1500

Thr Gly His His His His His His
1505 1510

<210> 676
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 676
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

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aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

tcgatggaaa acccaggtct atggattctg gggtgccaca actcagactt tcggaacaga 2100

ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

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aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 3120

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tgggtgcacc agattgccct gaggatggag gttctgggct gcgaggcaca ggacctctac 4440

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<210> 677
<211> 1511
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 677
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400


Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415


Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430


Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445


Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460


Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480


Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495


His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510


Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525


Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540


Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560


Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575


Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590


Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
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```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
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            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1235                1240                1245
```

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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1385                1390                1395

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1400                1405                1410

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Ala Ser Ser  Gly Lys Val
    1415                1420                1425

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1430                1435                1440

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1445                1450                1455
```

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
    1460   1465   1470

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
    1475   1480   1485

Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala
    1490   1495   1500

Thr Gly His His His His His His
    1505   1510

<210> 678
<211> 4536
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 678
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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<210> 679
<211> 1762
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 679
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val

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        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
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```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780
```

```
Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800


Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815


Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830


Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845


Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860


Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
```

995 1000 1005

Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg
1010 1015 1020

Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu
1025 1030 1035

Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met
1040 1045 1050

Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His Val
1055 1060 1065

Phe Thr Val Arg Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn
1070 1075 1080

Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys
1085 1090 1095

Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His
1100 1105 1110

Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1115 1120 1125

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
1130 1135 1140

Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1145 1150 1155

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1160 1165 1170

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1175 1180 1185

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1190 1195 1200

```
Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                 1210                 1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                 1225                 1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                 1255                 1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                 1270                 1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                 1285                 1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                 1300                 1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                 1315                 1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                 1330                 1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                 1345                 1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                 1360                 1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                 1375                 1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                 1390                 1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                 1405                 1410
```

```
Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1430                1435                1440

Gly Ala  Glu Thr Ala Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1445                1450                1455

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1460                1465                1470

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1475                1480                1485

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1490                1495                1500

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1505                1510                1515

Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1520                1525                1530

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1535                1540                1545

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1550                1555                1560

Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1565                1570                1575

Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1580                1585                1590

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    1595                1600                1605

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr
    1610                1615                1620
```

```
Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1625                1630                1635

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1640                1645                1650

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Pro Ala
    1655                1660                1665

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    1670                1675                1680

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1685                1690                1695

Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1700                1705                1710

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    1715                1720                1725

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ala Glu Thr  Ala Glu Gln
    1730                1735                1740

Lys Leu  Ile Ser Glu Glu Asp  Leu Ser Pro Ala Thr  Gly His His
    1745                1750                1755

His His  His His
    1760
```

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<211> 5289
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

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cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

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catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 2640

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gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 2760

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 2820

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cttctggtct gccacactaa cacactgaac cctgctcatg ggagacaagt gacagtacag 2940

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aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 3120

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agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 3660

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ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 3780

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 3840

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cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4080

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gagagtggcc caggcactag taccgagccc tctgaaggca gtgcgccagg ggccgaaacg 5220

gccgaacaaa aactcatctc agaagaggat ctgtcacctg caaccggtca tcatcaccat 5280

caccattga 5289

<210> 681
<211> 1762
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

```
Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
```

```
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
```

```
Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800
```

```
Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020
```

```
Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
```

```
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425
```

```
Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1430                1435                1440

Gly Ala  Glu Thr Ala Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1445                1450                1455

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1460                1465                1470

Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser
    1475                1480                1485

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly
    1490                1495                1500

Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1505                1510                1515

Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1520                1525                1530

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1535                1540                1545

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1550                1555                1560

Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
    1565                1570                1575

Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1580                1585                1590

Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser
    1595                1600                1605

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1610                1615                1620

Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
    1625                1630                1635
```

```
Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1640                1645                1650


Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser
    1655                1660                1665


Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1670                1675                1680


Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1685                1690                1695


Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    1700                1705                1710


Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser
    1715                1720                1725


Thr Pro  Ser Gly Ala Thr Gly  Ser Gly Ala Glu Thr  Ala Glu Gln
    1730                1735                1740


Lys Leu  Ile Ser Glu Glu Asp  Leu Ser Pro Ala Thr  Gly His His
    1745                1750                1755


His His  His His
    1760
```

<210> 682
<211> 5289
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 682
gccaccagaa gatactacct gggtgcagtg gaactgtcat gggactatat gcaaagtgat 60

ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

gtgcagcttg aggatccaga gttccaagcc tccaacatca tgcacagcat caatggctat 1860

gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

agcattggag cacagactga cttccttttct gtcttcttct ctggatatac cttcaaacac 1980

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ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 2580

catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 2640

ttcagaaatc aggcctctcg tccctattcc ttctattcta gccttatttc ttatgaggaa 2700

gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 2760

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 2820

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 2880

cttctggtct gccacactaa cacactgaac cctgctcatg ggagacaagt gacagtacag 2940

gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3000

atggaaagaa actgcagggc tccctgcaat atccagatgg aagatcccac ttttaaagag 3060

aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 3120

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 3180

tctattcatt tcagtggaca tgtgttcact gtacgaaaaa aagaggagta taaaatggca 3240

ctgtacaatc tctatccagg tgtttttgag acagtggaaa tgttaccatc caaagctgga 3300

atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 3360

ctggtgtaca gcaataagtg tcagactccc ctgggaatgg cttctggaca cattagagat 3420

tttcagatta cagcttcagg acaatatgga cagtgggccc caaagctggc cagacttcat 3480

tattccggat caatcaatgc ctggagcacc aaggagccct tttcttggat caaggtggat 3540

ctgttggcac caatgattat tcacggcatc aagacccagg gtgcccgtca gaagttctcc 3600

agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 3660

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 3720

ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 3780

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 3840

agcatgccat tgggaatgga gagtaaagca atatcagatg cacagattac tgcttcatcc 3900

tactttacca atatgtttgc cacctggtct ccttcaaaag ctcgacttca cctccaaggg 3960

aggagtaatg cctggagacc tcaggtgaat aatccaaaag agtggctgca agtggacttc 4020

cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4080

atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 4140

tttcagaatg gcaaagtaaa ggtttttcag ggaaatcaag actccttcac acctgtggtg 4200

aactctctag acccaccgtt actgactcgc taccttcgaa ttcaccccca gagttgggtg 4260

caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcc 4320

ggatcacctg gggccgaaac ggccccggga gcgtcacccg gtacgtcctc aacggggagc 4380

cctggggcat cacccggcac gtcctcgaca gggtcccccg gaacaccggg ttcggggact 4440

gcgtcgtcgt cacccggttc gtcaacaccc agcggtgcga cgggttcccc gggaaccccc 4500

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gcaacaggtt cacccgggtc gtccaccccc agcggagcga ctggatcacc gggatcgagc 4680

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cctggtgcgt caccggggac aagcagcacg ggttcgccgg gaacgccagg gtcagggacc 4800

gcgtcgtcga gcccagggtc gtccacccca agcggggcta ctgggtcccc gggtagctcg 4860

ccgagcgcat caacgggaac cggaccgggc agctcccccct cagcgtcgac agggacaggc 4920

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cccggttcca gcccttccgc ttcgactggg actggacccg gaaccccggg atcggggaca 5160

gcgtcaagct cgcccggaag ctccacgcct tcgggggcaa ccgggtcagg ggccgaaacg 5220

gccgaacaaa aactcatctc agaagaggat ctgtcacctg caaccggtca tcatcaccat 5280

caccattga 5289

<210> 683
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 683
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400


Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415


Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445


Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495


Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540


Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560


Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575


Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590


Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
```

595 600 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
610 615 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
645 650 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245
```

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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
```

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    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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<211> 4860
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu

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            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
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Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro Thr Ser Thr Glu Pro Ser
        595                 600                 605

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
    610                 615                 620
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Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
625                 630                 635                 640


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
                645                 650                 655


Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            660                 665                 670


Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
        675                 680                 685


Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser
    690                 695                 700


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
705                 710                 715                 720


Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
                725                 730                 735


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gly Val Gln
            740                 745                 750


Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765


Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780


Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845
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Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

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<210> 687
<211> 1619
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430
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Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
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                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                 1315                 1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                 1330                 1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                 1345                 1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                 1360                 1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                 1375                 1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                 1390                 1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                 1405                 1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                 1420                 1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct      300
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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
```

```
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445
```

```
Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro Gly Ala Ser Pro Gly Thr
        595                 600                 605

Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
    610                 615                 620

Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr
625                 630                 635                 640

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
                645                 650                 655

Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
            660                 665                 670
```

```
Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr
        675                 680                 685

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
    690                 695                 700

Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
705                 710                 715                 720

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
                725                 730                 735

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895
```

```
Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
```

```
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305
```

```
Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                 1315                 1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                 1330                 1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                 1345                 1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                 1360                 1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                 1375                 1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                 1390                 1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                 1405                 1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                 1420                 1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515
```

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
    1520   1525   1530

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
    1535   1540   1545

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
    1550   1555   1560

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1565   1570   1575

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1580   1585   1590

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
    1595   1600   1605

Ser Pro Ala Thr Gly His His His His His His
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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

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ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
```

```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
```

```
Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
```

```
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
```

```
Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125
```

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
```

1535 1540 1545

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1550 1555 1560

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1565 1570 1575

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1580 1585 1590

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1595 1600 1605

Ser Pro Ala Thr Gly His His His His His His
1610 1615

<210> 692
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

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gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

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ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacggcgc gccaagtccc gctggaagcc caactagcac cgaagagggg 2280

acctcagagt ccgccacccc cgagtccggc cctggctctg agcctgccac tagcggctcc 2340

gagactcctg gcacatccga aagcgctaca cccgagagtg gacccggcac ctctaccgag 2400

cccagtgagg gctccgcccc tggaacaagc accgagccca gcgaaggcag cgccccaggg 2460

acctccacag agcccagtga aggcagtgct cctggcacca gcaccgaacc aagcgagggc 2520

tctgcacccg ggacctccac cgagccaagc gaaggctctg cccctggcac ttccaccgag 2580

cccagcgaag gcagcgcccc tgggagcccc gctggctctc ccaccagcac tgaggagggc 2640

acatctaccg aaccaagtga aggctctgca ccaggtgcct cgagcccacc agtcttgaaa 2700

cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

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cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

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aactttgtca agcctaatga aaccaaaact tacttttgga aagtgcaaca tcatatggca 3240

cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

aaagatgtgc actcaggcct gattggaccc cttctggtct gccacactaa cacactgaac 3360

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ataatggata cactacctgg cttagtaatg gctcaggatc aaaggattcg atggtatctg 3600

ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

gtacgaaaaa aagaggagta taaaatggca ctgtacaatc tctatccagg tgtttttgag 3720

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aagacccagg gtgcccgtca gaagttctcc agcctctaca tctctcagtt tatcatcatg 4080

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gtcttctttg gcaatgtgga ttcatctggg ataaaacaca tatttttaa ccctccaatt 4200

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ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<210> 693
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

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Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
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        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495
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His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720
```

```
Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940
```

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Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
```

```
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560
```

```
Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605


Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615


<210> 694
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac      180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct      300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa      360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc      420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct      480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga      540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct       600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg      660

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

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Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525
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Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
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Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
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Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
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Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
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Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
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Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
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Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960
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Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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acagtggaaa tgttaccatc caaagctgga atttggcggg tggaatgcct tattggcgag 3780

catctacatg ctgggatgag cacacttttt ctggtgtaca gcaataagtg tcagactccc 3840

ctgggaatgg cttctggaca cattagagat tttcagatta cagcttcagg acaatatgga 3900

cagtgggccc caaagctggc cagacttcat tattccggat caatcaatgc ctggagcacc 3960

aaggagccct tttcttggat caaggtggat ctgttggcac caatgattat tcacggcatc 4020

aagacccagg gtgcccgtca gaagttctcc agcctctaca tctctcagtt tatcatcatg 4080

tatagtcttg atgggaagaa gtggcagact tatcgaggaa attccactgg aaccttaatg 4140

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agtcaagatg gccatcagtg gactctcttt tttcagaatg gcaaagtaaa ggtttttcag 4620

ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<210> 697
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

```
Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
```

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                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540
```

```
Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560


Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575


Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590


Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605


Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620


Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655


Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750


Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765
```

```
Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990
```

```
Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
```

```
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605
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Ser Pro Ala Thr Gly His His His His His His
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<210> 698
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc   420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct   480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga   540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg   720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg   780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac   840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg   960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat   1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt   1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa   1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc   1200

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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gcagaagttg aagataatat catggtaact ttcagaaatc aggcctctcg tccctattcc 3120

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aactttgtca agcctaatga aaccaaaact tacttttgga aagtgcaaca tcatatggca 3240

cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

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atccagatgg aagatcccac ttttaaagag aattatcgct tccatgcaat caatggctac 3540

ataatggata cactacctgg cttagtaatg gctcaggatc aaaggattcg atggtatctg 3600

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1622
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

```
Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
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Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
```

```
Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
```

```
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Gly Ala Pro
            820                 825                 830

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
        835                 840                 845

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    850                 855                 860

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
865                 870                 875                 880

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
                885                 890                 895

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            900                 905                 910

Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
        915                 920                 925

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly
    930                 935                 940

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
945                 950                 955                 960

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                965                 970                 975

Ala Ser Ser Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
            980                 985                 990

Val Phe Gln Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
        995                 1000                1005
```

```
Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1010                 1015                 1020

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1025                 1030                 1035

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1040                 1045                 1050

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1055                 1060                 1065

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1070                 1075                 1080

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1085                 1090                 1095

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1100                 1105                 1110

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1115                 1120                 1125

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1130                 1135                 1140

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1145                 1150                 1155

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1160                 1165                 1170

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1175                 1180                 1185

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1190                 1195                 1200

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1205                 1210                 1215
```

```
Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1220                1225                1230

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1235                1240                1245

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1250                1255                1260

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1265                1270                1275

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1280                1285                1290

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1295                1300                1305

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1310                1315                1320

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1325                1330                1335

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1340                1345                1350

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1355                1360                1365

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1370                1375                1380

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1385                1390                1395

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1400                1405                1410

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1415                1420                1425
```

```
Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1430                1435                1440

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1445                1450                1455

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1460                1465                1470

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1475                1480                1485

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1490                1495                1500

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1505                1510                1515

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1520                1525                1530

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1535                1540                1545

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1550                1555                1560

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1565                1570                1575

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1580                1585                1590

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    1595                1600                1605

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
    1610                1615                1620
```

<210> 700

<211> 4869
<212> DNA
<213> Artificial Sequence

<220>
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polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

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caatatggac agtgggcccc aaagctggcc agacttcatt attccggatc aatcaatgcc 3960

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gaggttctgg gctgcgaggc acaggacctc tacggcgccg gatcacctgg ggccgaaacg 4800

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caccattga 4869

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<211> 1622
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

```
Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365
```

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Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
```

```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
```

```
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Gly Ala Pro
            820                 825                 830

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
        835                 840                 845

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
                885                 890                 895

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            900                 905                 910

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        915                 920                 925

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
    930                 935                 940

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
945                 950                 955                 960

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                965                 970                 975

Ala Ser Ser Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
            980                 985                 990

Val Phe Gln Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
        995                 1000                1005

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1010                1015                1020
```

```
Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1025                1030                1035

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1040                1045                1050

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1055                1060                1065

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1070                1075                1080

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1085                1090                1095

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1100                1105                1110

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1115                1120                1125

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1130                1135                1140

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1145                1150                1155

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1160                1165                1170

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1175                1180                1185

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1190                1195                1200

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1205                1210                1215

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1220                1225                1230
```

```
Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1235                1240                1245

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1250                1255                1260

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1265                1270                1275

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1280                1285                1290

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1295                1300                1305

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1310                1315                1320

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1325                1330                1335

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1340                1345                1350

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1355                1360                1365

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1370                1375                1380

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1385                1390                1395

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1400                1405                1410

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1415                1420                1425

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1430                1435                1440
```

```
Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1445                1450                1455

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1460                1465                1470

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1475                1480                1485

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1490                1495                1500

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1505                1510                1515

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1520                1525                1530

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1535                1540                1545

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1550                1555                1560

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1565                1570                1575

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1580                1585                1590

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
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Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
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<210> 702
<211> 4869
<212> DNA
<213> Artificial Sequence

<220>
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polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400


Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415


Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430


Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445


Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460


Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480


Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495


His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510


Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525


Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540


Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560


Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575


Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590


Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
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Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
```

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            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1235                1240                1245
```

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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Gly
    1265                1270                1275

Ala Pro  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1280                1285                1290

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1295                1300                1305

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1310                1315                1320

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1325                1330                1335

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1340                1345                1350

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1355                1360                1365

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1370                1375                1380

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1385                1390                1395

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    1400                1405                1410

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ala  Ser Ser Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455
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```
Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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<220>
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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
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Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
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Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845
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Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
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Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Gly
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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Ser Pro  Ala Thr Gly His His  His His His His
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polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
```

```
Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
```

```
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080
```

```
Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290
```

```
Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                 1300                 1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                 1315                 1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                 1330                 1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                 1345                 1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                 1360                 1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                 1375                 1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                 1390                 1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                 1405                 1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                 1420                 1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Thr Ser
    1430                 1435                 1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1445                 1450                 1455

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1460                 1465                 1470

Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1475                 1480                 1485

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu
    1490                 1495                 1500
```

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser
1505 1510 1515

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
1520 1525 1530

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
1535 1540 1545

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
1550 1555 1560

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro
1565 1570 1575

Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Glu Gln Lys Leu Ile
1580 1585 1590

Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His His His His
1595 1600 1605

His

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<211> 4830
<212> DNA
<213> Artificial Sequence

<220>
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact actttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

gtgcagcttg aggatccaga gttccaagcc tccaacatca tgcacagcat caatggctat 1860

gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

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cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

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tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 3720

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<210> 709
<211> 1609
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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1 5 10 15

```
Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
```

```
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895
```

```
Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110
```

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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
```

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    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Pro Gly
    1430                1435                1440

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1445                1450                1455

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr
    1460                1465                1470

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1475                1480                1485

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1490                1495                1500

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly
    1505                1510                1515
```

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    1520   1525   1530

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
    1535   1540   1545

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
    1550   1555   1560

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
    1565   1570   1575

Ser Gly Thr Ala Ser Ser Ser Ala Ser Ser Glu Gln Lys Leu Ile
    1580   1585   1590

Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His His His His
    1595   1600   1605

His

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<211> 4830
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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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gcaaccggtc atcatcacca tcaccattga 4830

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<211> 1763
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys

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        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
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```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
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```
Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700
```

```
Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750


Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765


Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780


Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800


Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815


Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830


Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845


Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860


Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880


Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895


Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910


Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
```

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        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

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

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125
```

```
Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335
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Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545
```

```
Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Gly  Ser Pro Gly Ala Glu  Thr Ala Glu
    1730                1735                1740

Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser Pro Ala  Thr Gly His
```

1745 1750 1755

His His His His His His
1760

<210> 712
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

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polypeptide

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

```
Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
```

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        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495
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His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720
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```
Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940
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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
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Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990


Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005


Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020


Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035


Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050


Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065


Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080


Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095


Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110


Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125


Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140


Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
```

```
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Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
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Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350
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His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
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Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
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Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560
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Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
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Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
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Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Gly  Ser Pro Gly Ala Glu  Thr Ala Glu
    1730                1735                1740

Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser Pro Ala  Thr Gly His
    1745                1750                1755

His His  His His His
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polynucleotide

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
```

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        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
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Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
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Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960
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Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
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Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
```

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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1445                1450                1455

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1460                1465                1470

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1505                1510                1515

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1670                1675                1680

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1700                1705                1710

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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Pro Ala  Thr Gly His His His  His His His
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aggagtaatg cctggagacc tcaggtgaat aatccaaaag agtggctgca agtggacttc 4020

cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4080

atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 4140

tttcagaatg gcaaagtaaa ggtttttcag ggaaatcaag actccttcac acctgtggtg 4200

aactctctag acccaccgtt actgactcgc taccttcgaa ttcaccccca gagttgggtg 4260

caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcg 4320

ccaggtacct cagagtctgc tacccccgag tcagggccag gatcagagcc agccacctcc 4380

gggtctgaga cacccgggac ttccgagagt gccacccctg agtccggacc cgggtccgag 4440

cccgccactt ccggctccga aactcccggc acaagcgaga gcgctacccc agagtcagga 4500

ccaggaacat ctacagagcc ctctgaaggc tccgctccag ggtccccagc cggcagtccc 4560

actagcaccg aggagggaac ctctgaaagc gccacacccg aatcagggcc agggtctgag 4620

cctgctacca gcggcagcga gacaccaggc acctctgagt ccgccacacc agagtccgga 4680

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gagtcggcaa ccccggagtc tggacccgga acttccgaaa gtgccacacc agagtccggt 4860

cccgggactt cagaatcagc aacacccgag tccggccctg ggtctgaacc cgccacaagt 4920

ggtagtgaga caccaggatc agaacctgct acctcagggt cagagacacc cggatctccg 4980

gcaggctcac caacctccac tgaggagggc accagcacag aaccaagcga gggctccgca 5040

cccggaacaa gcactgaacc cagtgagggt tcagcacccg gctctgagcc ggccacaagt 5100

ggcagtgaga cacccggcac ttcagagagt gccacccccg agagtggccc aggcactagt 5160

accgagccct ctgaaggcag tgcgccagcc tcgagcgaac aaaaactcat ctcagaagag 5220

gatctgtcac ctgcaaccgg tcatcatcac catcaccatt ga 5262

<210> 717
<211> 1753
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 717
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

```
Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
```

```
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780
```

```
Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800


Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815


Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830


Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845


Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860


Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005
```

```
Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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```
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410
```

```
Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Pro Gly
    1430                1435                1440

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1445                1450                1455

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1460                1465                1470

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1475                1480                1485

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1490                1495                1500

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1505                1510                1515

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1520                1525                1530

Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1535                1540                1545

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1550                1555                1560

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1565                1570                1575

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1580                1585                1590

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1595                1600                1605

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1610                1615                1620
```

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Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1625                1630                1635


Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1640                1645                1650


Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1655                1660                1665


Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1670                1675                1680


Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Pro
    1685                1690                1695


Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr
    1700                1705                1710


Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1715                1720                1725


Ser Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    1730                1735                1740


Pro Ala  Thr Gly His His His  His His His
    1745                1750
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<210> 718
<211> 5262
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

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actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

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gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

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aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 3120

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tcgactggga ctggacccgg aaccccggga tcggggacag cgtcaagctc gcccggaagc 5160

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gatctgtcac ctgcaaccgg tcatcatcac catcaccatt ga 5262

<210> 719
<211> 2329
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu

```
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
```

```
Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
```

```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830
```

```
Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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```
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1235                1240                1245
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```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Ser
    1430                1435                1440

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1445                1450                1455
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Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1490                 1495                 1500

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser
    1505                 1510                 1515

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1550                 1555                 1560

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
    1565                 1570                 1575

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1580                 1585                 1590

Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1595                 1600                 1605

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1610                 1615                 1620

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser
    1625                 1630                 1635

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1640                 1645                 1650

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1655                 1660                 1665
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Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1685                1690                1695

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1805                1810                1815

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1940                1945                1950

Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    1970                1975                1980

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1985                1990                1995

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    2030                2035                2040

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2045                2050                2055

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2060                2065                2070
```

```
Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    2090                 2095                 2100

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2105                 2110                 2115

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2120                 2125                 2130

Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2135                 2140                 2145

Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    2150                 2155                 2160

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser
    2165                 2170                 2175

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2180                 2185                 2190

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2195                 2200                 2205

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    2210                 2215                 2220

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Pro Ala Gly
    2225                 2230                 2235

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2240                 2245                 2250

Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2255                 2260                 2265

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
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Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
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Pro Ser Glu Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile
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His

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
```

```
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895
```

```
Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110
```

```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
```

```
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ser  Ser Pro Ser
    1445                1450                1455

Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1475                1480                1485

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1490                1495                1500

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1505                1510                1515
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Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
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Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1550                1555                1560

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1565                1570                1575

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1580                1585                1590

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
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Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
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Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
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Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1670                1675                1680

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
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Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
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Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1805                1810                1815

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
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Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
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Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1925                1930                1935
```

```
Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1955                1960                1965

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1970                1975                1980

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1985                1990                1995

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2000                2005                2010

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    2015                2020                2025

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
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Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
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Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
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Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    2090                2095                2100

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser
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Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
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Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
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Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
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Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
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His

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<211> 1619
<212> PRT
<213> Artificial Sequence

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polypeptide

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Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
35 40 45

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
50 55 60

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
65 70 75 80

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Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
                85                  90                  95

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
            100                 105                 110

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser
        115                 120                 125

Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
    130                 135                 140

Glu Glu Gly Ala Ser Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val
145                 150                 155                 160

Glu Leu Ser Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300
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Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525
```

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Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
```

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            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960
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```
Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170
```

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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                 1180                 1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                 1195                 1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                 1210                 1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                 1225                 1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                 1240                 1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                 1255                 1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                 1270                 1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                 1285                 1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                 1300                 1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                 1315                 1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                 1330                 1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                 1345                 1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                 1360                 1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                 1375                 1380
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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<210> 725
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<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
35 40 45

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
50 55 60

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
65 70 75 80

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
85 90 95

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
100 105 110

```
Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
        115                 120                 125

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
    130                 135                 140

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser
145                 150                 155                 160

Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
                165                 170                 175

Glu Glu Gly Ala Ser Ser Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
```

```
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540
```

```
Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765
```

```
Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990
```

```
Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
```

```
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605
```

Ser Pro Ala Thr Gly His His His His His His
    1610   1615

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      polynucleotide

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acccctgaaa gtggtcccgg gagcgagcca gccacatctg ggtcggaaac gccaggcaca   180

agtgagtctg caactcccga gtccggacct ggctccgagc ctgccactag cggctccgag   240

actccgggaa cttccgagag cgctacacca gaaagcggac ccggaaccag taccgaacct   300

agcgagggct ctgctccggg cagcccagcc ggctctccta catccacgga ggagggcact   360

tccgaatccg ccaccccgga gtcagggcca ggatctgaac ccgctacctc aggcagtgag   420

acgccaggaa cgagcgagtc cgctacaccg gagagtgggc cagggagccc tgctggatct   480

cctacgtcca ctgaggaagg gtcaccagcg ggctcgccca ccagcactga agaaggtgcc   540

tcgagcagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg   600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt   660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac   720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag   780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct   840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac   900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca   960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag   1020

accttgcaca aatttatact acttttttgct gtatttgatg aagggaaaag ttggcactca   1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa   1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg   1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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gaggactggg actatgctcc cttagtcctc gcccccgatg acagaagtta taaaagtcaa 1680

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tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

ctcctcatct gctacaaaga atctgtagat caaagaggaa accagataat gtcagacaag 2160

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gggtgccaca actcagactt tcggaacaga ggcatgaccg ccttactgaa ggtttctagt 2580

tgtgacaaga acactggtga ttattacgag gacagttatg aagatatttc agcatacttg 2640

ctgagtaaaa acaatgccat tgaaccaaga agcttctctc aaaacccacc agtcttgaaa 2700

cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<212> PRT
<213> Artificial Sequence

<220>
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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
65 70 75 80

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
85 90 95

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
100 105 110

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
115 120 125

```
Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
    130                 135                 140

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
145                 150                 155                 160

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
                165                 170                 175

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
            180                 185                 190

Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
        195                 200                 205

Thr Glu Glu Gly Ala Ser Ser Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350
```

```
Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
```

```
Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
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785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
835 840 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
850 855 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865 870 875 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
885 890 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
900 905 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
915 920 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
930 935 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945 950 955 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
965 970 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
980 985 990

Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
995 1000 1005

```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                 1525                 1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                 1555                 1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                 1570                 1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                 1585                 1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                 1600                 1605

Ser Pro  Ala Thr Gly His His  His His His His His
    1610                 1615
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<210> 728

<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggggcgc gccaacatca gagagcgcca cccctgaaag tggtcccggg 240

agcgagccag ccacatctgg gtcggaaacg ccaggcacaa gtgagtctgc aactcccgag 300

tccggacctg gctccgagcc tgccactagc ggctccgaga ctccgggaac ttccgagagc 360

gctacaccag aaagcggacc cggaaccagt accgaaccta gcgagggctc tgctccgggc 420

agcccagccg gctctcctac atccacggag gagggcactt ccgaatccgc caccccggag 480

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<210> 729
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
85 90 95

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
100 105 110

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
115 120 125

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
130 135 140

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
145 150 155 160

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Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
                165                 170                 175

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
            180                 185                 190

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
        195                 200                 205

Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
    210                 215                 220

Thr Glu Glu Gly Ala Ser Ser Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
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    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590
```

```
Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815
```

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
```

```
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic

polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gly Ala Pro Gly Ser Ser Pro Ser Ala
115 120 125

Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
130 135 140

Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
145 150 155 160

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser
165 170 175

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Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
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Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser
        195                 200                 205

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
    210                 215                 220

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
225                 230                 235                 240

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala
                245                 250                 255

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
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Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
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Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
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Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
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Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
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Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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cctgctcatg ggagacaagt gacagtacag gaatttgctc tgtttttcac catctttgat 3420

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<210> 733
<211> 1619
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
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Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
225                 230                 235                 240

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
                245                 250                 255

Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            260                 265                 270

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
        275                 280                 285

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
    290                 295                 300

Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
305                 310                 315                 320

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
                325                 330                 335

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
            340                 345                 350

Ser Ser Thr Gly Ser Pro Ala Ser Ser Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
```

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            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
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```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
```

```
Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080
```

```
Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
```

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    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Gly Ala Pro Gly
    210                 215                 220
```

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Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser
225                 230                 235                 240

Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                245                 250                 255

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            260                 265                 270

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
        275                 280                 285

Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
    290                 295                 300

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
305                 310                 315                 320

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
                325                 330                 335

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            340                 345                 350

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala
        355                 360                 365

Ser Ser Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445
```

```
Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670
```

```
Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
```

```
               885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095
```

```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305
```

```
Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                 1315                 1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                 1330                 1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                 1345                 1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                 1360                 1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                 1375                 1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                 1390                 1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                 1405                 1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                 1420                 1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515
```

```
Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
```

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<211> 4860
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

ggcgcgccag gctccagccc ctccgcgagc acgggaaccg gaccaggttc gtcaccctca 720

gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt 780

gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca 840

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aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

```
Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
225                 230                 235                 240

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
                245                 250                 255
```

```
Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
            260                 265                 270

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
        275                 280                 285

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
    290                 295                 300

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
305                 310                 315                 320

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
                325                 330                 335

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
            340                 345                 350

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        355                 360                 365

Gly Ser Pro Ala Ser Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
```

```
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685
```

```
Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
```

```
Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125
```

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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1325 1330 1335

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1340 1345 1350

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1355 1360 1365

Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe
1370 1375 1380

Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
1385 1390 1395

Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser
1400 1405 1410

Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn
1415 1420 1425

Ser Cys Ser Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp
1430 1435 1440

Ala Gln Ile Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr
1445 1450 1455

Trp Ser Pro Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn
1460 1465 1470

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1475 1480 1485

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1490 1495 1500

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1505 1510 1515

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1520 1525 1530

```
Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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<210> 738
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctggcgcgcc aggctccagc ccctccgcga gcacgggaac cggaccaggt 720

tcgtcaccct cagcatcaac ggggacggga ccgggggcgt caccaggaac gtcctccacc 780

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aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg acagaagtta taaaagtcaa 1680

tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

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cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro

```
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
```

```
Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
            340                 345                 350

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
        355                 360                 365

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
    370                 375                 380

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
385                 390                 395                 400

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
                405                 410                 415

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            420                 425                 430

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        435                 440                 445

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
    450                 455                 460

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
465                 470                 475                 480

Gly Ser Pro Ala Ser Ser Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495
```

```
Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
```

```
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

```
Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350
```

```
Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560
```

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1565   1570   1575

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1580   1585   1590

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
    1595   1600   1605

Ser Pro Ala Thr Gly His His His His His His
    1610   1615

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<213> Artificial Sequence

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgagg cgcgccaggc 1020

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tcgtcaacgc cttccggagc aactggtagc cccggagcat cgccaggaac ttcgagcacg 1440

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
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```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
            340                 345                 350

Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
        355                 360                 365

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    370                 375                 380

Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
385                 390                 395                 400

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
                405                 410                 415

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
            420                 425                 430

Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
        435                 440                 445

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
    450                 455                 460

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
465                 470                 475                 480

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
```

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        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
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Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960
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Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                 1210                 1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                 1225                 1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                 1240                 1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                 1270                 1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                 1345                 1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
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actcagggag taaaatctct gcttaccagc atgtatgtga aggagttcct catctccagc 4560

agtcaagatg gccatcagtg gactctcttt tttcagaatg gcaaagtaaa ggtttttcag 4620

ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

aaactcatct cagaagagga tctgtcacct gcaaccggtc atcatcacca tcaccattga 4860

<210> 743
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 743
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala

```
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Gly Ala Pro Thr Ser Thr
    370                 375                 380

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
385                 390                 395                 400

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                405                 410                 415

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
            420                 425                 430

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
        435                 440                 445

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    450                 455                 460

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
465                 470                 475                 480

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
                485                 490                 495

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            500                 505                 510

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540
```

```
Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765
```

```
Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
```

```
           980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605
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Ser Pro Ala Thr Gly His His His His His His
    1610   1615

<210> 744
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc   420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct   480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga   540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg   720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg   780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac   840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg   960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat   1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt   1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatggcgcg   1140

ccaaccagta cggagccgtc cgaggggagc gcaccaggaa gcccggctgg gagcccgact   1200

tctaccgaag agggtacatc taccgaacca agtgaaggtt cagcaccagg cacctcaaca 1260

gaaccctctg agggctcggc gcctggtaca agtgagtccg ccaccccaga atccgggcct 1320

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gaatcagggc caggatctga gcccgcgact tcgggctccg agacgcctgg gacatccacc 1440

gagccctccg aaggatcagc cccaggcacc agcacggagc cctctgaggg aagcgcacct 1500

ggtaccagcg aaagcgcaac tcccgaatca ggtcccggta cgagcgagtc ggcgaccccg 1560

gagagcgggc caggtgcctc gagccctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg acagaagtta taaaagtcaa 1680

tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

ttaccaaaag gtgtaaaaca tttgaaggat tttccaattc tgccaggaga aatattcaaa 1980

tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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ttcccattct caggagaaac tgtcttcatg tcgatggaaa acccaggtct atggattctg 2520

gggtgccaca actcagactt tcggaacaga ggcatgaccg ccttactgaa ggtttctagt 2580

tgtgacaaga acactggtga ttattacgag gacagttatg aagatatttc agcatacttg 2640

ctgagtaaaa acaatgccat tgaaccaaga agcttctctc aaaacccacc agtcttgaaa 2700

cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

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cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

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aactttgtca agcctaatga aaccaaaact tacttttgga aagtgcaaca tcatatggca 3240

cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

aaagatgtgc actcaggcct gattggaccc cttctggtct gccacactaa cacactgaac 3360

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gagaccaaaa gctggtactt cactgaaaat atggaaagaa actgcagggc tccctgcaat 3480

atccagatgg aagatcccac ttttaaagag aattatcgct tccatgcaat caatggctac 3540

ataatggata cactacctgg cttagtaatg gctcaggatc aaaggattcg atggtatctg 3600

ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

gtacgaaaaa aagaggagta taaaatggca ctgtacaatc tctatccagg tgtttttgag 3720

acagtggaaa tgttaccatc caaagctgga atttggcggg tggaatgcct tattggcgag 3780

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tatagtcttg atgggaagaa gtggcagact tatcgaggaa attccactgg aaccttaatg 4140

gtcttctttg gcaatgtgga ttcatctggg ataaaacaca atatttttaa ccctccaatt 4200

attgctcgat acatccgttt gcacccaact cattatagca ttcgcagcac tcttcgcatg 4260

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ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

aaactcatct cagaagagga tctgtcacct gcaaccggtc atcatcacca tcaccattga 4860

<210> 745
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 745
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

```
Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
```

```
Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Gly
385                 390                 395                 400

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                405                 410                 415

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            420                 425                 430

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        435                 440                 445

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    450                 455                 460

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
465                 470                 475                 480

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                485                 490                 495

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            500                 505                 510

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        515                 520                 525

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
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                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780
```

```
Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005
```

```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215
```

```
Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
```

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    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
```

<210> 746
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcggc 1200

gcgccaacca gtacggagcc gtccgagggg agcgcaccag gaagcccggc tgggagcccg 1260

acttctaccg aagagggtac atctaccgaa ccaagtgaag gttcagcacc aggcacctca 1320

acagaaccct ctgagggctc ggcgcctggt acaagtgagt ccgccacccc agaatccggg 1380

cctgggacaa gcacagaacc ttcggaaggg agtgcccctg gaacatccga atcggcaacc 1440

ccagaatcag ggccaggatc tgagcccgcg acttcgggct ccgagacgcc tgggacatcc 1500

accgagccct ccgaaggatc agccccaggc accagcacgg agccctctga gggaagcgca 1560

cctggtacca gcgaaagcgc aactcccgaa tcaggtcccg gtacgagcga gtcggcgacc 1620

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cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

ttaccaaaag gtgtaaaaca tttgaaggat tttccaattc tgccaggaga aatattcaaa 1980

tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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ataatggata cactacctgg cttagtaatg gctcaggatc aaaggattcg atggtatctg 3600

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catctacatg ctgggatgag cacacttttt ctggtgtaca gcaataagtg tcagactccc 3840

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 747
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser

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145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365
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Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        435                 440                 445

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
            500                 505                 510

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        515                 520                 525

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590
```

```
Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815
```

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
```

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    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230
```

```
Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440
```

```
Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His His
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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
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Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
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Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
            420                 425                 430

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
        435                 440                 445

Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
    450                 455                 460

Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
465                 470                 475                 480

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala
               485                 490                 495

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
            500                 505                 510

Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
        515                 520                 525

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala
    530                 535                 540

Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
545                 550                 555                 560

Gly Pro Gly Ala Ser Ser Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
               565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
```

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    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830
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Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615


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<211> 1619
<212> PRT
<213> Artificial Sequence

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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415
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```
Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Gly Ala Pro Thr Ser Thr Glu Pro Ser
                485                 490                 495

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
            500                 505                 510

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
545                 550                 555                 560

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                565                 570                 575

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser
            580                 585                 590

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        595                 600                 605

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    610                 615                 620

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Ser Arg Arg
625                 630                 635                 640
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
```

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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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<210> 753
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 753

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220
```

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445
```

```
Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Gly Ala
                485                 490                 495

Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
            500                 505                 510

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
        515                 520                 525

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    530                 535                 540

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
545                 550                 555                 560

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
                565                 570                 575

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            580                 585                 590

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
        595                 600                 605

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    610                 615                 620

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
625                 630                 635                 640

Gly Ala Ser Ser Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
```

660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
835 840 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
850 855 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865 870 875 880

```
Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095
```

```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305
```

```
Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
```

1505 1510 1515

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1520 1525 1530

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1535 1540 1545

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1550 1555 1560

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1565 1570 1575

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1580 1585 1590

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1595 1600 1605

Ser Pro Ala Thr Gly His His His His His His
1610 1615

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<211> 4860
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtggcgcgcc aaccagtacg 1500

gagccgtccg aggggagcgc accaggaagc ccggctggga gcccgacttc taccgaagag 1560

ggtacatcta ccgaaccaag tgaaggttca gcaccaggca cctcaacaga accctctgag 1620

ggctcggcgc ctggtacaag tgagtccgcc accccagaat ccgggcctgg gacaagcaca 1680

gaaccttcgg aagggagtgc ccctggaaca tccgaatcgg caaccccaga atcagggcca 1740

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ggatcagccc caggcaccag cacggagccc tctgagggaa gcgcacctgg taccagcgaa 1860

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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gagaccaaaa gctggtactt cactgaaaat atggaaagaa actgcagggc tccctgcaat 3480

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ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

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ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1619
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

```
Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
```

```
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460
```

```
Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser
            500                 505                 510

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
        515                 520                 525

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro
    530                 535                 540

Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
545                 550                 555                 560

Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
                565                 570                 575

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
            580                 585                 590

Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
        595                 600                 605

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
    610                 615                 620

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala
625                 630                 635                 640

Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685
```

```
Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
```

```
Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
```

```
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320
```

```
Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530
```

```
Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605


Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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<210> 756
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 756

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac      180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct      300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa      360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc      420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct      480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga      540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct       600
```

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

ggcgcgccaa ccagtacgga gccgtccgag gggagcgcac caggaagccc ggctgggagc 1560

ccgacttcta ccgaagaggg tacatctacc gaaccaagtg aaggttcagc accaggcacc 1620

tcaacagaac cctctgaggg ctcggcgcct ggtacaagtg agtccgccac cccagaatcc 1680

gggcctggga caagcacaga accttcggaa gggagtgccc ctggaacatc cgaatcggca 1740

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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tccaacatca tgcacagcat caatggctat gtttttgata gtttgcagtt gtcagtttgt 2340

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ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<210> 757
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 757
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

```
Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
```

```
Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495
```

```
His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Gly Ala Pro Gly Ala
        595                 600                 605

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
    610                 615                 620

Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
625                 630                 635                 640

Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
                645                 650                 655

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
            660                 665                 670

Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
        675                 680                 685

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
    690                 695                 700

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
```

```
705                 710                 715                 720

Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                725                 730                 735

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser
            740                 745                 750

Ser Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925
```

```
Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

```
Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350
```

```
Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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1550 1555 1560

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1565 1570 1575

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1580 1585 1590

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1595 1600 1605

Ser Pro Ala Thr Gly His His His His His His
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<210> 758
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
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Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
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Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
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Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
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Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
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Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
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Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Gly Ala Pro Gly Thr Pro
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Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
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Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
785                 790                 795                 800

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
            820                 825                 830

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        835                 840                 845

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
    850                 855                 860

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
865                 870                 875                 880

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                885                 890                 895

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
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Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
               965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1130                1135                1140

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575
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Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
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acagtggaaa tgttaccatc caaagctgga atttggcggg tggaatgcct tattggcgag 3780

catctacatg ctgggatgag cacacttttt ctggtgtaca gcaataagtg tcagactccc 3840

ctgggaatgg cttctggaca cattagagat tttcagatta cagcttcagg acaatatgga 3900

cagtgggccc caaagctggc cagacttcat tattccggat caatcaatgc ctggagcacc 3960

aaggagccct tttcttggat caaggtggat ctgttggcac caatgattat tcacggcatc 4020

aagacccagg gtgcccgtca gaagttctcc agcctctaca tctctcagtt tatcatcatg 4080

tatagtcttg atgggaagaa gtggcagact tatcgaggaa attccactgg aaccttaatg 4140

gtcttctttg gcaatgtgga ttcatctggg ataaaacaca atatttttaa ccctccaatt 4200

attgctcgat acatccgttt gcacccaact cattatagca ttcgcagcac tcttcgcatg 4260

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agtcaagatg gccatcagtg gactctcttt tttcagaatg gcaaagtaaa ggtttttcag 4620

ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<210> 761
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 761
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540
```

```
Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
```

```
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
            820                 825                 830

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
        835                 840                 845

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
    850                 855                 860

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
                885                 890                 895

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            900                 905                 910

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
        915                 920                 925

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
    930                 935                 940

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
945                 950                 955                 960

Ser Ala Pro Gly Ala Ser Ser Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975
```

```
Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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1595 1600 1605

Ser Pro Ala Thr Gly His His His His His His
1610 1615

<210> 762
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

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ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

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acacgacact attttattgc tgcagtggag aggctctggg attatgggat gggcgcgcca 2460

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cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

aaagatgtgc actcaggcct gattggaccc cttctggtct gccacactaa cacactgaac 3360

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atccagatgg aagatcccac ttttaaagag aattatcgct tccatgcaat caatggctac 3540

ataatggata cactacctgg cttagtaatg gctcaggatc aaaggattcg atggtatctg 3600

ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

gtacgaaaaa aagaggagta taaaatggca ctgtacaatc tctatccagg tgtttttgag 3720

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<210> 763
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

```
Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
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            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780
```

```
Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800


Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815


Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Gly
            820                 825                 830


Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
        835                 840                 845


Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
    850                 855                 860


Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
865                 870                 875                 880


Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
                885                 890                 895


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            900                 905                 910


Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
        915                 920                 925


Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
    930                 935                 940


Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
945                 950                 955                 960


Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                965                 970                 975


Pro Gly Ala Ser Ser Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005
```

```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
```

```
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                 1420                 1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                 1525                 1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                 1555                 1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                 1570                 1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                 1585                 1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                 1600                 1605

Ser Pro  Ala Thr Gly His His  His His His His His
    1610                 1615
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<220>
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polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1619
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

```
Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365
```

```
Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
```

```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
```

```
               805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Ala Pro Thr Ser Glu Ser Ala Thr
    850                 855                 860

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
865                 870                 875                 880

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                885                 890                 895

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            900                 905                 910

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        915                 920                 925

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro
    930                 935                 940

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
945                 950                 955                 960

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
                965                 970                 975

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
            980                 985                 990

Thr Glu Pro Ser Glu Gly Ser Ala  Pro Gly Ala Ser Ser  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020
```

```
Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230
```

```
Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440
```

```
Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
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<210> 766
<211> 4860
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggcgc gccaacgtcc 2580

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
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385 390 395 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
405 410 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
420 425 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
435 440 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
450 455 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465 470 475 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
485 490 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
500 505 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
515 520 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
530 535 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545 550 555 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
565 570 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
580 585 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
595 600 605

```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830
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Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1010                1015                1020

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1025                1030                1035

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1040                1045                1050
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```
Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1055                1060                1065

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1070                1075                1080

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1085                1090                1095

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1100                1105                1110

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1115                1120                1125

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1130                1135                1140

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1145                1150                1155

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
```

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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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<211> 1619
<212> PRT

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
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Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
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    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
    1010                1015                1020

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1025                1030                1035

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1040                1045                1050

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1055                1060                1065
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Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1085                1090                1095

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1100                1105                1110

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1115                1120                1125

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    1130                1135                1140

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1145                1150                1155

Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 771
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210   215   220

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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
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        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
```

```
Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880
```

```
Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
        995                 1000                1005

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1010                1015                1020

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1025                1030                1035

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1040                1045                1050

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1055                1060                1065

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1070                1075                1080

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1085                1090                1095
```

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Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1100                1105                1110

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1115                1120                1125

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1130                1135                1140

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

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    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500
```

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
```

<210> 772
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 772
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact actttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

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gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

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catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 2640

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agcgctaccc cggagagcgg gccaggaact agtactgagc ctagcgaggg aagtgcacct 3240

ggtacaagcg agtccgccac acccgagtct ggccctggct ctccagcggg ctcacccacg 3300

agcactgaag agggctctcc cgctggcagc ccaacgtcga cagaagaagg atcaccagca 3360

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ggtacctcca ctgagcccag cgaggggagt gcaccaggtg cctcgagcgc tccctgcaat 3480

atccagatgg aagatcccac ttttaaagag aattatcgct tccatgcaat caatggctac 3540

ataatggata cactacctgg cttagtaatg gctcaggatc aaaggattcg atggtatctg 3600

ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

gtacgaaaaa aagaggagta taaaatggca ctgtacaatc tctatccagg tgtttttgag 3720

acagtggaaa tgttaccatc caaagctgga atttggcggg tggaatgcct tattggcgag 3780

catctacatg ctgggatgag cacacttttt ctggtgtaca gcaataagtg tcagactccc 3840

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aagacccagg gtgcccgtca gaagttctcc agcctctaca tctctcagtt tatcatcatg 4080

tatagtcttg atgggaagaa gtggcagact tatcgaggaa attccactgg aaccttaatg 4140

gtcttctttg gcaatgtgga ttcatctggg ataaaacaca atatttttaa ccctccaatt 4200

attgctcgat acatccgttt gcacccaact cattatagca ttcgcagcac tcttcgcatg 4260

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agtcaagatg gccatcagtg gactctcttt tttcagaatg gcaaagtaaa ggtttttcag 4620

ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

aaactcatct cagaagagga tctgtcacct gcaaccggtc atcatcacca tcaccattga 4860

<210> 773
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 773
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro

```
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460
```

```
Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685
```

```
Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
```

```
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
        995                 1000                1005

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1010                1015                1020

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1025                1030                1035

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1040                1045                1050

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1055                1060                1065

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1070                1075                1080

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1085                1090                1095

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1100                1105                1110
```

```
Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1115                 1120                 1125

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1130                 1135                 1140

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1145                 1150                 1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                 1165                 1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                 1180                 1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                 1195                 1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                 1210                 1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                 1225                 1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                 1240                 1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                 1255                 1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                 1270                 1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                 1285                 1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                 1300                 1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                 1315                 1320
```

```
Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530
```

```
Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605


Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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<210> 774
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

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agtcaagatg gccatcagtg gactctcttt tttcagaatg gcaaagtaaa ggtttttcag 4620

ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

aaactcatct cagaagagga tctgtcacct gcaaccggtc atcatcacca tcaccattga 4860

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
20 25 30

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

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Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    50                  55                  60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65                  70                  75                  80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                85                  90                  95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            100                 105                 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        115                 120                 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270
```

```
Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
```

```
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700
```

```
Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925
```

```
Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

```
Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
```

```
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545
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Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
    1550   1555   1560

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1565   1570   1575

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1580   1585   1590

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
    1595   1600   1605

Ser Pro Ala Thr Gly His His His His His His
    1610   1615

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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
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Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
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Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
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Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
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Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
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Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
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His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
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Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
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Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
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Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
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Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
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Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
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Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
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Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
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Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
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Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
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Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
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polypeptide

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20 25 30

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
50 55 60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
85 90 95

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Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
            100                 105                 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        115                 120                 125

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    130                 135                 140

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
145                 150                 155                 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
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Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
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Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
```

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    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750
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Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975
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```
Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185
```

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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
```

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    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590
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Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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gaaagcggac ccggaaccag taccgaacct agcgagggct ctgctccggg cagcccagcc   300

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag   780

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<212> PRT
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polypeptide

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Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
35 40 45

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
50 55 60

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
65 70 75 80

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
85 90 95

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
100 105 110

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr

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        115                 120                 125

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
    130                 135                 140

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser
145                 150                 155                 160

Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
```

```
Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
```

```
Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780
```

```
Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
```

995 1000 1005

Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val
1010 1015 1020

Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
1025 1030 1035

Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
1040 1045 1050

Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
1055 1060 1065

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys
1070 1075 1080

Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp
1085 1090 1095

Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val
1100 1105 1110

Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr
1115 1120 1125

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

Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Ala Pro
1145 1150 1155

Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg
1160 1165 1170

Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu
1175 1180 1185

Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met
1190 1195 1200

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                 1210                 1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                 1225                 1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                 1240                 1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                 1255                 1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                 1270                 1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                 1285                 1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                 1300                 1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                 1315                 1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                 1330                 1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                 1345                 1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                 1360                 1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                 1375                 1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                 1390                 1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                 1405                 1410
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                 1420                 1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                 1525                 1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                 1555                 1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                 1570                 1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                 1585                 1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                 1600                 1605

Ser Pro  Ala Thr Gly His His  His His His His His
    1610                 1615
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<210> 782
<211> 4860
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<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ccctcagcat caacggggac gggaccgggg gcgtcaccag gaacgtcctc caccggctcg 180

ccgggtgcat cacccggaac gtcatcgacc ggatcgccag ggagctcgac gccatcaggc 240

gcaacaggat cacctggctc aagccctagc gcgtcaaccg gcacgggtcc gggtgcctcc 300

cctggcacgt ccagcaccgg atcacccgga tcgagcccat ccgcctcaac cggaaccgga 360

cccggtacac cagggtcggg aacagcctcc tcgtcaccag gctcctcaac cccctcggga 420

gccacgggtt cgcccggttc gtcaacgcct tccggagcaa ctggtagccc cggagcatcg 480

ccaggaactt cgagcacggg gtcgcccgcc tcgagcgagc tgcctgtgga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

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tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

ttaccaaaag gtgtaaaaca tttgaaggat tttccaattc tgccaggaga aatattcaaa 1980

tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

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ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

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acagtggaaa tgttaccatc caaagctgga atttggcggg tggaatgcct tattggcgag 3780

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Thr Ser Glu
20 25 30

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40 45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
50 55 60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65 70 75 80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
85 90 95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
100 105 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
115 120 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
130 135 140

```
Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145                 150                 155                 160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365
```

```
Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
```

```
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
```

```
Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020
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```
Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230
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```
Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
```

1430 1435 1440

Ala Gln Ile Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr
1445 1450 1455

Trp Ser Pro Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn
1460 1465 1470

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1475 1480 1485

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1490 1495 1500

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1505 1510 1515

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1520 1525 1530

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1535 1540 1545

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1550 1555 1560

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1565 1570 1575

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1580 1585 1590

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1595 1600 1605

Ser Pro Ala Thr Gly His His His His His His
1610 1615

<210> 784
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 784
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gggagcgagc cagccacatc tgggtcggaa acgccaggca caagtgagtc tgcaactccc 180

gagtccggac ctggctccga gcctgccact agcggctccg agactccggg aacttccgag 240

agcgctacac cagaaagcgg acccggaacc agtaccgaac ctagcgaggg ctctgctccg 300

ggcagcccag ccggctctcc tacatccacg gaggagggca cttccgaatc cgccaccccg 360

gagtcagggc caggatctga acccgctacc tcaggcagtg agacgccagg aacgagcgag 420

tccgctacac cggagagtgg gccagggagc cctgctggat ctcctacgtc cactgaggaa 480

gggtcaccag cgggctcgcc caccagcact gaagaaggtg cctcgagcga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

gaggaacccc aactacgaat gaaaaataat gaagaagcgg aagactatga tgatgatctt 1500

actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg acagaagtta taaaagtcaa 1680

tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

ttaccaaaag gtgtaaaaca tttgaaggat tttccaattc tgccaggaga aatattcaaa 1980

tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

ctcctcatct gctacaaaga atctgtagat caaagaggaa accagataat gtcagacaag 2160

aggaatgtca tcctgttttc tgtatttgat gagaaccgaa gctggtacct cacagagaat 2220

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tccaacatca tgcacagcat caatggctat gtttttgata gtttgcagtt gtcagtttgt 2340

ttgcatgagg tggcatactg gtacattcta agcattggag cacagactga cttcctttct 2400

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ttcccattct caggagaaac tgtcttcatg tcgatggaaa acccaggtct atggattctg 2520

gggtgccaca actcagactt tcggaacaga ggcatgaccg ccttactgaa ggtttctagt 2580

tgtgacaaga acactggtga ttattacgag gacagttatg aagatatttc agcatacttg 2640

ctgagtaaaa acaatgccat tgaaccaaga agcttctctc aaaacccacc agtcttgaaa 2700

cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

ggcagtgtcc ctcagttcaa gaaagttgtt ttccaggaat ttactgatgg ctcctttact 3000

cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

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cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

aaagatgtgc actcaggcct gattggaccc cttctggtct gccacactaa cacactgaac 3360

cctgctcatg ggagacaagt gacagtacag gaatttgctc tgtttttcac catctttgat 3420

gagaccaaaa gctggtactt cactgaaaat atggaaagaa actgcagggc tccctgcaat 3480

atccagatgg aagatcccac ttttaaagag aattatcgct tccatgcaat caatggctac 3540

ataatggata cactacctgg cttagtaatg gctcaggatc aaaggattcg atggtatctg 3600

ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

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acagtggaaa tgttaccatc caaagctgga atttggcggg tggaatgcct tattggcgag 3780

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aagacccagg gtgcccgtca gaagttctcc agcctctaca tctctcagtt tatcatcatg 4080

tatagtcttg atgggaagaa gtggcagact tatcgaggaa attccactgg aaccttaatg 4140

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taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<210> 785
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 785
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser

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                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380
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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605
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Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830
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Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455
```

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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470


Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485


Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500


Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515


Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530


Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605


Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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<210> 786
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 786

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tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt 300

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accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

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cccggagcat cgccaggaac ttcgagcacg gggtcgcccg cctcgagcga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

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ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

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ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Thr Ser Glu Ser Ala
35 40 45

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
50 55 60

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
65 70 75 80

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
85 90 95

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
100 105 110

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
115 120 125

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
130 135 140

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
145 150 155 160

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
165 170 175

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser Asn Thr
180 185 190

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Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
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Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
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Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
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His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
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Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
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Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
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625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
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Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
835 840 845

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Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
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Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
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Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
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Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
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aatccaaaag agtggctgca agtggacttc cagaagacaa tgaaagtcac aggagtaact 4500

actcagggag taaaatctct gcttaccagc atgtatgtga aggagttcct catctccagc 4560

agtcaagatg gccatcagtg gactctcttt tttcagaatg gcaaagtaaa ggtttttcag 4620

ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<210> 789
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 789
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
        35   40   45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50   55   60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65   70   75   80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85   90   95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100   105   110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115   120   125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130   135   140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145   150   155   160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165   170   175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro

```
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430
```

```
Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
```

```
Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
```

```
Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
               885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
```

```
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290
```

```
Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                 1300                 1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                 1315                 1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                 1330                 1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                 1345                 1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                 1360                 1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                 1375                 1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                 1390                 1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                 1405                 1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                 1420                 1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500
```

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
    1505   1510   1515

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
    1520   1525   1530

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
    1535   1540   1545

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
    1550   1555   1560

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1565   1570   1575

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1580   1585   1590

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
    1595   1600   1605

Ser Pro Ala Thr Gly His His His His His His
    1610   1615

<210> 790
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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ggcgcgccag gctccagccc ctccgcgagc acgggaaccg gaccaggttc gtcaccctca   180

gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt   240

gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca   300

ggatcacctg gctcaagccc tagcgcgtca accggcacgg gtccgggtgc ctcccctggc   360

acgtccagca ccggatcacc cggatcgagc ccatccgcct caaccggaac cggacccggt 420

acaccagggt cgggaacagc ctcctcgtca ccaggctcct caacccccctc gggagccacg 480

ggttcgcccg gttcgtcaac gccttccgga gcaactggta gccccggagc atcgccagga 540

acttcgagca cggggtcgcc cgcctcgagc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

gaggaacccc aactacgaat gaaaaataat gaagaagcgg aagactatga tgatgatctt 1500

actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg acagaagtta taaaagtcaa 1680

tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

ttaccaaaag gtgtaaaaca tttgaaggat tttccaattc tgccaggaga aatattcaaa 1980

tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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gggtgccaca actcagactt tcggaacaga ggcatgaccg ccttactgaa ggtttctagt 2580

tgtgacaaga acactggtga ttattacgag gacagttatg aagatatttc agcatacttg 2640

ctgagtaaaa acaatgccat tgaaccaaga agcttctctc aaaacccacc agtcttgaaa 2700

cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

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aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

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cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

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aactttgtca agcctaatga aaccaaaact tacttttgga aagtgcaaca tcatatggca 3240

cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

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ataatggata cactacctgg cttagtaatg gctcaggatc aaaggattcg atggtatctg 3600

ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

gtacgaaaaa aagaggagta taaaatggca ctgtacaatc tctatccagg tgtttttgag 3720

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taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

aaactcatct cagaagagga tctgtcacct gcaaccggtc atcatcacca tcaccattga 4860

<210> 791
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 791
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Gly Ala Pro Thr Ser Thr Glu Pro
    210                 215                 220

Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
225                 230                 235                 240
```

```
Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
                245                 250                 255

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala
            260                 265                 270

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
        275                 280                 285

Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
    290                 295                 300

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro
305                 310                 315                 320

Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
                325                 330                 335

Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
            340                 345                 350

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
```

```
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895
```

```
Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110
```

```
Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320
```

```
Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
```

1520 1525 1530

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1535 1540 1545

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1550 1555 1560

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1565 1570 1575

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1580 1585 1590

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1595 1600 1605

Ser Pro Ala Thr Gly His His His His His His
1610 1615

<210> 792
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttggg cgcgccaacc 660

agtacggagc cgtccgaggg gagcgcacca ggaagcccgg ctgggagccc gacttctacc 720

gaagagggta catctaccga accaagtgaa ggttcagcac caggcacctc aacagaaccc 780

tctgagggct cggcgcctgg tacaagtgag tccgccaccc cagaatccgg gcctgggaca 840

agcacagaac cttcggaagg gagtgcccct ggaacatccg aatcggcaac cccagaatca 900

gggccaggat ctgagcccgc gacttcgggc tccgagacgc ctgggacatc caccgagccc 960

tccgaaggat cagccccagg caccagcacg gagccctctg agggaagcgc acctggtacc 1020

agcgaaagcg caactcccga atcaggtccc ggtacgagcg agtcggcgac cccggagagc 1080

gggccaggtg cctcgagcat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

gaggaacccc aactacgaat gaaaaataat gaagaagcgg aagactatga tgatgatctt 1500

actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg acagaagtta taaaagtcaa 1680

tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

ttaccaaaag gtgtaaaaca tttgaaggat tttccaattc tgccaggaga aatattcaaa 1980

tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

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aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

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aaagatgtgc actcaggcct gattggaccc cttctggtct gccacactaa cacactgaac 3360

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ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<210> 793
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

```
Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Gly Ala Pro Gly Ala Ser Pro Gly
    210                 215                 220

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
225                 230                 235                 240

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                245                 250                 255

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
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            260                 265                 270

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
        275                 280                 285

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
    290                 295                 300

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
305                 310                 315                 320

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
                325                 330                 335

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
            340                 345                 350

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
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```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700
```

```
Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750


Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765


Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780


Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925
```

```
Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
```

```
    1130                1135                1140

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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<210> 794
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttggg cgcgccaggt 660

gcctcgccgg gaacatcatc aactggttca cccgggtcat ccccctcggc ctcaaccggg 720

acgggtcccg gctcatcccc cagcgccagc actggaacag gtcctggcac tcctggttcc 780

ggtacggcat cgtcatcccc gggaagctca acaccgtccg gagcgacagg atcacctggc 840

tcgtcacctt cggcgtcaac tggaacgggg ccaggggcct cacccggaac gtcctcgact 900

gggtcgcctg gtacgccggg atcaggaacg gcctcatcct cgcctgggtc ctcaacgccc 960

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aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1622
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

```
Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
```

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Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Ser Val Ala Gly Ala Pro Gly Ala Ser
    370                 375                 380

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
385                 390                 395                 400

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
                405                 410                 415

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
            420                 425                 430

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
        435                 440                 445

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    450                 455                 460

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
465                 470                 475                 480

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
                485                 490                 495

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            500                 505                 510
```

```
Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
        515                 520                 525

Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu
    530                 535                 540

Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr
545                 550                 555                 560

Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr
                565                 570                 575

Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg
            580                 585                 590

Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly
        595                 600                 605

Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg
    610                 615                 620

Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr
625                 630                 635                 640

Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile
                645                 650                 655

Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp
            660                 665                 670

Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser
        675                 680                 685

Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu
    690                 695                 700

Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met
705                 710                 715                 720

Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg
```

```
                725                 730                 735

Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala
            740                 745                 750

Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His
        755                 760                 765

Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu
    770                 775                 780

His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp
785                 790                 795                 800

Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val
                805                 810                 815

Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe
            820                 825                 830

Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser
        835                 840                 845

Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys
    850                 855                 860

Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser
865                 870                 875                 880

Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser
                885                 890                 895

Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr
            900                 905                 910

Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
        915                 920                 925

Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
    930                 935                 940
```

```
Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
945                 950                 955                 960

Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
                965                 970                 975

Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
            980                 985                 990

Val Phe Gln Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
        995                 1000                1005

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1010                1015                1020

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1025                1030                1035

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1040                1045                1050

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1055                1060                1065

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1070                1075                1080

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1085                1090                1095

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1100                1105                1110

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1115                1120                1125

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1130                1135                1140

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1145                1150                1155
```

```
Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1160                1165                1170

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1175                1180                1185

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1190                1195                1200

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1205                1210                1215

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1220                1225                1230

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1235                1240                1245

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1250                1255                1260

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1265                1270                1275

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1280                1285                1290

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1295                1300                1305

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1310                1315                1320

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1325                1330                1335

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1340                1345                1350

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1355                1360                1365
```

```
Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1370                1375                1380

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1385                1390                1395

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1400                1405                1410

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1415                1420                1425

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1430                1435                1440

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1445                1450                1455

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1460                1465                1470

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1475                1480                1485

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1490                1495                1500

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1505                1510                1515

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1520                1525                1530

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1535                1540                1545

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1550                1555                1560

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
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1565 1570 1575

Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
1580 1585 1590

Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
1595 1600 1605

Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
1610 1615 1620

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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<211> 1619
<212> PRT
<213> Artificial Sequence

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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gly Ala Pro Thr Ser Thr
        435                 440                 445

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
    450                 455                 460

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
465                 470                 475                 480

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
                485                 490                 495

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
            500                 505                 510

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        515                 520                 525
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
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Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
545                 550                 555                 560

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
```

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            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960
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Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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<212> PRT
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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

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Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
```

```
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gly Ala Pro Gly Ala Ser
        435                 440                 445

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    450                 455                 460

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
465                 470                 475                 480

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
                485                 490                 495

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            500                 505                 510

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        515                 520                 525

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
    530                 535                 540
```

```
Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
545                 550                 555                 560


Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
                565                 570                 575


Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
            580                 585                 590


Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605


Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620


Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640


Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655


Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670


Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685


Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700


Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750


Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765
```

```
Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990
```

```
Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
```

```
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605
```

Ser Pro Ala Thr Gly His His His His His His
    1610   1615

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc   420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct   480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga   540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg   720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg   780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac   840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg   960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat   1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt   1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa   1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc   1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattggcg cgccaggtgc ctcgccggga acatcatcaa ctggttcacc cgggtcatcc 1380

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agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

ctcctcatct gctacaaaga atctgtagat caaagaggaa accagataat gtcagacaag 2160

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<212> PRT
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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

```
Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
```

```
Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
```

```
Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
```

```
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro
            900                 905                 910

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        915                 920                 925

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    930                 935                 940

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
945                 950                 955                 960

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                965                 970                 975

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
            980                 985                 990

Gly Ser Pro Thr Ser Thr Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr
        995                 1000                1005
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```
Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1010                 1015                 1020

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1025                 1030                 1035

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ala  Ser Ser Arg
    1040                 1045                 1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                 1060                 1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                 1075                 1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                 1090                 1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                 1105                 1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                 1120                 1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                 1150                 1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                 1165                 1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                 1180                 1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                 1195                 1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                 1210                 1215
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```
Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425
```

```
Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                 1525                 1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                 1555                 1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                 1570                 1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                 1585                 1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                 1600                 1605

Ser Pro  Ala Thr Gly His His  His His His His His
    1610                 1615
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<210> 802

<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

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caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

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gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

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cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<210> 803
<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
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    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
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Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815
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Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr
            900                 905                 910

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        915                 920                 925

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
945                 950                 955                 960

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
                965                 970                 975

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
        995                 1000                1005

Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1025                1030                1035
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Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
```

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    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440
```

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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605

Ser Pro  Ala Thr Gly His His  His His His His His
    1610                1615
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic

polynucleotide

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tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
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Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
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Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
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Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
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Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
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Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
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Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
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Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
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Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
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Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
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Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
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Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Gly Ala Pro Thr
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Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
        915                 920                 925

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
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Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
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Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
            980                 985                 990

Gly Pro Gly Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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Pro Gly  Ala Ser Ser Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1130                1135                1140

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                 1555                 1560


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                 1570                 1575


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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Ser Pro  Ala Thr Gly His His  His His His His
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gtacgaaaaa aagaggagta taaaatggca ctgtacaatc tctatccagg tgtttttgag 3720

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<211> 1619
<212> PRT
<213> Artificial Sequence

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
```

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            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
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```
Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860
```

```
Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Gly Ala Pro Gly
            900                 905                 910


Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
        915                 920                 925


Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
    930                 935                 940


Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
945                 950                 955                 960


Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
                965                 970                 975


Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
            980                 985                 990


Gly Ser Pro Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
        995                 1000                1005


Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Thr
    1010                1015                1020


Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1025                1030                1035


Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1040                1045                1050


Ser Pro  Ala Ser Ser Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080
```

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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
```

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    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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<210> 808
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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<211> 1903
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 809
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445
```

```
Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Ser Glu
            740                 745                 750

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        755                 760                 765

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    770                 775                 780

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
785                 790                 795                 800

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                805                 810                 815

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            820                 825                 830

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        835                 840                 845

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    850                 855                 860

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
865                 870                 875                 880

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
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Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
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Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    930                 935                 940

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
945                 950                 955                 960

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
               965                 970                 975

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            980                 985                 990

Glu Pro Ser Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
        995                 1000                1005

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1010                1015                1020

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1025                1030                1035

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

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095
```

```
Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305
```

```
Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515
```

```
Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
```

```
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Pro  Thr Ser Thr Glu Pro  Ser Glu Gly
    1730                1735                1740

Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1745                1750                1755

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1760                1765                1770

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1775                1780                1785

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1790                1795                1800

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1805                1810                1815

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1820                1825                1830

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Glu  Pro Ala Thr
    1835                1840                1845

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1850                1855                1860

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1865                1870                1875

Gly Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    1880                1885                1890

Pro Ala  Thr Gly His His His  His His His
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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<211> 1759
<212> PRT
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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

```
Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
```

```
Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
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```
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700
```

```
Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750


Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765


Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780


Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815


Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860


Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925
```

```
Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

```
Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
```

```
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Thr Ser
    1580                1585                1590

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1595                1600                1605

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1610                1615                1620

Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1625                1630                1635

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu
    1640                1645                1650

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser
    1655                1660                1665

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1670                1675                1680

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1685                1690                1695

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1700                1705                1710

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1715                1720                1725

Ser Glu  Gly Ser Ala Pro Gly  Ala Ser Ser Glu Gln  Lys Leu Ile
    1730                1735                1740

Ser Glu  Glu Asp Leu Ser Pro  Ala Thr Gly His His  His His His
    1745                1750                1755
```

His

<210> 812
<211> 5280
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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<210> 813
<211> 1759
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 813
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
```

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    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

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Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960
```

```
Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
               965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
```

```
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365
```

```
Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575
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Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Pro Thr Ser
    1580   1585   1590

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala
    1595   1600   1605

Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    1610   1615   1620

Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    1625   1630   1635

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu
    1640   1645   1650

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser
    1655   1660   1665

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
    1670   1675   1680

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    1685   1690   1695

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
    1700   1705   1710

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro
    1715   1720   1725

Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Glu Gln Lys Leu Ile
    1730   1735   1740

Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His His His His
    1745   1750   1755

His

<210> 814
<211> 5280

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 814
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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ggagcgtccc ccggaacttc aagcacaggg agccctgcct cgagcccacc agtcttgaaa 2700

cgccatcaag ctgaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

ggcagtgtcc ctcagttcaa gaaagttgtt ttccaggaat ttactgatgg ctcctttact 3000

cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

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cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

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ataatggata cactacctgg cttagtaatg gctcaggatc aaaggattcg atggtatctg 3600

ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

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catctacatg ctgggatgag cacacttttt ctggtgtaca gcaataagtg tcagactccc 3840

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gagcctgcaa cctctggctc agagactccc ggctcagaac ccgctacctc aggctccgag 4980

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gagccagcaa ccagcgggtc cgagactccc gggacctctg agtctgccac cccagagagc 5160

ggacccggca cttcaaccga gccctccgaa ggatcagcac caggtgcctc gagcgaacaa 5220

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<210> 815
<211> 1759
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 815
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1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala

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            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540
```

```
Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560


Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575


Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590


Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605


Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620


Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655


Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750


Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765
```

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Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
```

```
           980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                 1195                 1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                 1210                 1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                 1225                 1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                 1240                 1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                 1255                 1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                 1270                 1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                 1285                 1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                 1300                 1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                 1315                 1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                 1330                 1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                 1345                 1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                 1360                 1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                 1375                 1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                 1390                 1395
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Thr Ser
    1580                1585                1590

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1595                1600                1605
```

```
Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1610                 1615                 1620

Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1625                 1630                 1635

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu
    1640                 1645                 1650

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser
    1655                 1660                 1665

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1670                 1675                 1680

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1685                 1690                 1695

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1700                 1705                 1710

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1715                 1720                 1725

Ser Glu  Gly Ser Ala Pro Gly  Ala Ser Ser Glu Gln  Lys Leu Ile
    1730                 1735                 1740

Ser Glu  Glu Asp Leu Ser Pro  Ala Thr Gly His His  His His His
    1745                 1750                 1755

His
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<210> 816
<211> 5280
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
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Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
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Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
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Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
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Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
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Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
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835 840 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
850 855 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
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Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
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Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
915 920 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
930 935 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945 950 955 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
965 970 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
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Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                 1525                 1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                 1555                 1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                 1570                 1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Thr Ser
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
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Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
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Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
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Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

```
His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
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Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
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Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
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Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625 630 635 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
645 650 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
660 665 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
675 680 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
690 695 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
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Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
725 730 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Ser Glu
740 745 750

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
755 760 765

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
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Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
805 810 815

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Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
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Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
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Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
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Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
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Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
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Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
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Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
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Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                965                 970                 975

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            980                 985                 990

Glu Pro Ser Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
        995                 1000                1005

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
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Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
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Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
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Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
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Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
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Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
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Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
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Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
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Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
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Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
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Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
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Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
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Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
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```

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Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
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Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
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Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
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Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
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Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
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Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
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Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
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His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
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Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
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Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
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Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
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Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
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Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
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Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
```

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Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
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Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
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Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
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Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
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Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
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Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
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Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
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Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
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Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
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Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
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Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
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Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
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Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
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Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
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His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
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Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
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Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
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Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
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Gln Asp  Leu Tyr Gly Ala Pro  Thr Ser Thr Glu Pro  Ser Glu Gly
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Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
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Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
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Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Glu  Pro Ala Thr
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Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
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Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
```

```
Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
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Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860
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Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
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Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910


Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
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Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990


Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005


Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
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Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
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Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
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Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
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Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
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Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
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Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
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Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275
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```
Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
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Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
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Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
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Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
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Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
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Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
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Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
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Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
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Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
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Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
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Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
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Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
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Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
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Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
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Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
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Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
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Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
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Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
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Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
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Gln Asp  Leu Tyr Gly Ala Pro  Thr Ser Thr Glu Pro  Ser Glu Gly
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Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1775                1780                1785

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1790                1795                1800

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Glu  Pro Ala Thr
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Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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tccgaaagtg ccactcccga gagcggccca gggacaagcg agtcagcaac ccctgagtct 5340

ggacccggca gcgagcctgc aacctctggc tcagagactc ccggctcaga acccgctacc 5400

tcaggctccg agacacccgg ctctcctgct gggagtccca cttccaccga ggaaggaaca 5460

tccactgagc ctagtgaggg ctctgcccct ggaaccagca cagagccaag tgagggcagt 5520

gcaccaggat ccgagccagc aaccagcggg tccgagactc ccgggacctc tgagtctgcc 5580

accccagaga gcggacccgg cacttcaacc gagccctccg aaggatcagc accaggtgcc 5640

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<210> 823
<211> 1903
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 823
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460
```

```
Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
```

675 680 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
690 695 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705 710 715 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
725 730 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
740 745 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
755 760 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
770 775 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785 790 795 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
805 810 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
820 825 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
835 840 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
850 855 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865 870 875 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
885 890 895

```
Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

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

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110
```

```
Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320
```

```
Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
```

```
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725
```

```
Gln Asp  Leu Tyr Gly Ala Pro  Thr Ser Thr Glu Pro  Ser Glu Gly
    1730                1735                1740

Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1745                1750                1755

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1760                1765                1770

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1775                1780                1785

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1790                1795                1800

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1805                1810                1815

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1820                1825                1830

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Glu  Pro Ala Thr
    1835                1840                1845

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1850                1855                1860

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1865                1870                1875

Gly Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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<211> 5712
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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gcaccaggat ccgagccagc aaccagcggg tccgagactc ccgggacctc tgagtctgcc 5580

accccagaga gcggacccgg cacttcaacc gagccctccg aaggatcagc accaggtgcc 5640

tcgagcgaac aaaaactcat ctcagaagag gatctgtcac ctgcaaccgg tcatcatcac 5700

catcaccatt ga 5712

<210> 825
<211> 1903
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 825
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

```
Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
```

```
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495
```

```
His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720
```

```
Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Ser Glu
            740                 745                 750

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        755                 760                 765

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    770                 775                 780

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
785                 790                 795                 800

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                805                 810                 815

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            820                 825                 830

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        835                 840                 845

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    850                 855                 860

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
865                 870                 875                 880

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                885                 890                 895

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            900                 905                 910

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        915                 920                 925

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    930                 935                 940
```

```
Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
945                 950                 955                 960


Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                965                 970                 975


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            980                 985                 990


Glu Pro Ser Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
        995                 1000                1005


Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1010                1015                1020


Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1025                1030                1035


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


Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065


Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080


Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095


Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110


Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125


Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140


Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
```

```
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350
```

```
His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560
```

```
Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ser Ser Pro  Ser Ala Ser
    1730                1735                1740

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1745                1750                1755

Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1760                1765                1770
```

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
1775 1780 1785

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
1790 1795 1800

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
1805 1810 1815

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
1820 1825 1830

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
1835 1840 1845

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
1850 1855 1860

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
1865 1870 1875

Ser Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
1880 1885 1890

Pro Ala Thr Gly His His His His His His
1895 1900

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<211> 5712
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<213> Artificial Sequence

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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<211> 1903
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<213> Artificial Sequence

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
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```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540
```

```
Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
```

```
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975
```

```
Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

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

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185
```

```
Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395
```

```
Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
```

```
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ser Ser Pro  Ser Ala Ser
    1730                1735                1740

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1745                1750                1755

Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1760                1765                1770

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1775                1780                1785

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1790                1795                1800
```

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
1805 1810 1815

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
1820 1825 1830

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
1835 1840 1845

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
1850 1855 1860

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
1865 1870 1875

Ser Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
1880 1885 1890

Pro Ala Thr Gly His His His His His His
1895 1900

<210> 828
<211> 5712
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gaaatcgatt atgatgatac catatcagtt gaaatgaaga aggaagattt tgacatttat 3240

gatgaggatg aaaatcagag cccccgcagc tttcaaaaga aaacacgaca ctattttatt 3300

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ggcacgtcga gcacaggcag ccccggaacc cctggatcgg gaaccgcgtc gtcaagcgcc 5640

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<210> 829
<211> 1903
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 829
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

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Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
```

```
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
```

```
Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Ser Glu
            740                 745                 750

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        755                 760                 765

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    770                 775                 780

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
785                 790                 795                 800
```

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                805                 810                 815

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            820                 825                 830

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        835                 840                 845

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    850                 855                 860

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
865                 870                 875                 880

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                885                 890                 895

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            900                 905                 910

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        915                 920                 925

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    930                 935                 940

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
945                 950                 955                 960

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                965                 970                 975

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            980                 985                 990

Glu Pro Ser Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
        995                 1000                1005

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1010                1015                1020
```

```
Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
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Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
```

```
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425
```

```
Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635
```

```
Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ser Ser Pro  Ser Ala Ser
    1730                1735                1740

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1745                1750                1755

Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1760                1765                1770

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1775                1780                1785

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1790                1795                1800

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1805                1810                1815

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1820                1825                1830

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro
    1835                1840                1845
```

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
1850 1855 1860

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
1865 1870 1875

Ser Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
1880 1885 1890

Pro Ala Thr Gly His His His His His His
1895 1900

<210> 830
<211> 5712
<212> DNA
<213> Artificial Sequence

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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<211> 2047
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655


Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Ser Glu
            740                 745                 750


Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        755                 760                 765


Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    770                 775                 780


Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
785                 790                 795                 800


Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                805                 810                 815


Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            820                 825                 830


Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
```

```
        835                 840                 845

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    850                 855                 860

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
865                 870                 875                 880

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                885                 890                 895

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            900                 905                 910

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        915                 920                 925

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    930                 935                 940

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
945                 950                 955                 960

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                965                 970                 975

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            980                 985                 990

Glu Pro Ser Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
        995                 1000                1005

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1010                1015                1020

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050
```

```
Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
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Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260
```

```
Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
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Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470
```

```
Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
```

```
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1730                1735                1740

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1745                1750                1755

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1760                1765                1770

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1775                1780                1785

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1790                1795                1800

Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1805                1810                1815

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1820                1825                1830

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1835                1840                1845

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1850                1855                1860

Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1865                1870                1875
```

```
Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1880                1885                1890


Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    1895                1900                1905


Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920


Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935


Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1940                1945                1950


Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    1955                1960                1965


Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1970                1975                1980


Gly Ser  Ala Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995


Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2000                2005                2010


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Ala Ser  Ser Glu Gln
    2015                2020                2025


Lys Leu  Ile Ser Glu Glu Asp  Leu Ser Pro Ala Thr  Gly His His
    2030                2035                2040


His His  His His
    2045


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<211> 6144
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
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<210> 833
<211> 1903
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 833

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220
```

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445
```

```
Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
```

```
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880
```

```
Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095
```

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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305
```

```
Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                 1315                 1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                 1330                 1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                 1345                 1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                 1360                 1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                 1375                 1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                 1390                 1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                 1405                 1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                 1420                 1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
```

```
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1580                1585                1590

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1595                1600                1605

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1610                1615                1620

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1625                1630                1635

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1640                1645                1650

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1655                1660                1665

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1670                1675                1680

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1685                1690                1695

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1700                1705                1710
```

```
Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1715                 1720                 1725

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1730                 1735                 1740

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1745                 1750                 1755

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1760                 1765                 1770

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1775                 1780                 1785

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                 1795                 1800

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1805                 1810                 1815

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1820                 1825                 1830

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1835                 1840                 1845

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1850                 1855                 1860

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1865                 1870                 1875

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    1880                 1885                 1890

Pro Ala  Thr Gly His His His  His His His
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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<210> 835
<211> 1903
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 835
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

```
Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
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            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
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Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700
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Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750


Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765


Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780


Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815


Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860


Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925
```

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Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
```

```
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1580                1585                1590

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1595                1600                1605

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1610                1615                1620

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1625                1630                1635

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1640                1645                1650

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1655                1660                1665

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1670                1675                1680

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1685                1690                1695

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1700                1705                1710

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1715                1720                1725

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1730                1735                1740

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1745                1750                1755
```

```
Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1760                1765                1770

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1775                1780                1785

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                1795                1800

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1805                1810                1815

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1820                1825                1830

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1835                1840                1845

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1850                1855                1860

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1865                1870                1875

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    1880                1885                1890

Pro Ala  Thr Gly His His His  His His His
    1895                1900
```

<210> 836
<211> 5712
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

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gagactcctg gcacatccga aagcgctaca cccgagagtg gacccggcac ctctaccgag 2400

cccagtgagg gctccgcccc tggaacaagc accgagccca gcgaaggcag cgccccaggg 2460

acctccacag agcccagtga aggcagtgct cctggcacca gcaccgaacc aagcgagggc 2520

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cccagcgaag gcagcgcccc tgggagcccc gctggctctc ccaccagcac tgaggagggc 2640

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cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

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cctgctcatg ggagacaagt gacagtacag gaatttgctc tgtttttcac catctttgat 3420

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catctacatg ctgggatgag cacacttttt ctggtgtaca gcaataagtg tcagactccc 3840

ctgggaatgg cttctggaca cattagagat tttcagatta cagcttcagg acaatatgga 3900

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tcagcacccg gctctgagcc ggccacaagt ggcagtgaga cacccggcac ttcagagagt 5580

gccacccccg agagtggccc aggcactagt accgagccct ctgaaggcag tgcgccagcc 5640

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<210> 837
<211> 2047
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 837
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
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Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525
```

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Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
```

```
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960
```

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Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170
```

```
Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380
```

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Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                 1390                 1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                 1405                 1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                 1420                 1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                 1435                 1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                 1465                 1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                 1480                 1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                 1495                 1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                 1510                 1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                 1525                 1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                 1540                 1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                 1555                 1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                 1570                 1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
```

```
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1730                1735                1740

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1745                1750                1755

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1760                1765                1770

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1775                1780                1785
```

```
Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1790                 1795                 1800

Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1805                 1810                 1815

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1820                 1825                 1830

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1835                 1840                 1845

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1850                 1855                 1860

Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1865                 1870                 1875

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    1895                 1900                 1905

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1940                 1945                 1950

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    1955                 1960                 1965

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1970                 1975                 1980

Gly Ser  Ala Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995
```

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
2000 2005 2010

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Ala Ser Ser Glu Gln
2015 2020 2025

Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His
2030 2035 2040

His His His His
2045

<210> 838
<211> 6144
<212> DNA
<213> Artificial Sequence

<220>
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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<211> 2047
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
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```
Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
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                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Ser Glu
            740                 745                 750

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        755                 760                 765

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    770                 775                 780
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
785                 790                 795                 800


Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                805                 810                 815


Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            820                 825                 830


Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        835                 840                 845


Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    850                 855                 860


Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
865                 870                 875                 880


Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                885                 890                 895


Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            900                 905                 910


Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        915                 920                 925


Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    930                 935                 940


Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
945                 950                 955                 960


Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                965                 970                 975


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            980                 985                 990


Glu Pro Ser Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
        995                 1000                1005
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```
Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1010                1015                1020

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1025                1030                1035

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

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215
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Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
```

```
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620
```

```
Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                 1630                 1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                 1645                 1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                 1660                 1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                 1675                 1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                 1690                 1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                 1705                 1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                 1720                 1725

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ala Ser Pro  Gly Thr Ser
    1730                 1735                 1740

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1745                 1750                 1755

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1760                 1765                 1770

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1775                 1780                 1785

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1790                 1795                 1800

Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1805                 1810                 1815

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1820                 1825                 1830
```

```
Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1835                 1840                 1845

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    1850                 1855                 1860

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1865                 1870                 1875

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1880                 1885                 1890

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1895                 1900                 1905

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    1910                 1915                 1920

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1925                 1930                 1935

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1940                 1945                 1950

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1955                 1960                 1965

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1970                 1975                 1980

Ser Thr  Gly Ser Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1985                 1990                 1995

Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    2000                 2005                 2010

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Ala Ser  Ser Glu Gln
    2015                 2020                 2025

Lys Leu  Ile Ser Glu Glu Asp  Leu Ser Pro Ala Thr  Gly His His
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His His His His
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
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385 390 395 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
405 410 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
420 425 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
435 440 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
450 455 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465 470 475 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
485 490 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
500 505 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
515 520 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
530 535 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545 550 555 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
565 570 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
580 585 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
595 600 605

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Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830
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Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1265 1270 1275

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
1280 1285 1290

Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1295 1300 1305

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1310 1315 1320

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1325 1330 1335

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1340 1345 1350

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1355 1360 1365

Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe
1370 1375 1380

Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
1385 1390 1395

Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser
1400 1405 1410

Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn
1415 1420 1425

Ser Cys Ser Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp
1430 1435 1440

Ala Gln Ile Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr
1445 1450 1455

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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                 1525                 1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                 1555                 1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                 1570                 1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Pro Gly
    1580                 1585                 1590

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1595                 1600                 1605

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1610                 1615                 1620

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1625                 1630                 1635

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1640                 1645                 1650

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1655                 1660                 1665
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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
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Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1685                1690                1695

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1700                1705                1710

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1715                1720                1725

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1730                1735                1740

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
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Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
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Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1775                1780                1785

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1790                1795                1800

Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1805                1810                1815

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1820                1825                1830

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Pro
    1835                1840                1845

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr
    1850                1855                1860

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1865                1870                1875
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Pro Ala Thr Gly His His His His His His
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polypeptide

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205
```

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
```

```
Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
```

```
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080
```

```
Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290
```

```
Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
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Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500
```

```
Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
```

```
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Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
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Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ala Ser Pro  Gly Thr Ser
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Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
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Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
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Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
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Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
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Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
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Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
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Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
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Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
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Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
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Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
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Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    1955   1960   1965

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
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Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
    1985   1990   1995

Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
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Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Ala Ser Ser Glu Gln
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Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His
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        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
```

```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
```

```
Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
```

```
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Ser Glu
            740                 745                 750

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        755                 760                 765

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    770                 775                 780

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
785                 790                 795                 800

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                805                 810                 815

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            820                 825                 830

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        835                 840                 845

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    850                 855                 860

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
865                 870                 875                 880

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                885                 890                 895

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            900                 905                 910
```

```
Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        915                 920                 925


Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    930                 935                 940


Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
945                 950                 955                 960


Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                965                 970                 975


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            980                 985                 990


Glu Pro Ser Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
        995                 1000                1005


Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1010                1015                1020


Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1025                1030                1035


Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050


Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065


Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080


Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095


Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110


Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125
```

```
Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
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Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335
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Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
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1535 1540 1545

Ile Arg Leu His Pro Thr His Tyr Ser Ile Arg Ser Thr Leu Arg
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Met Glu Leu Met Gly Cys Asp Leu Asn Ser Cys Ser Met Pro Leu
1565 1570 1575

Gly Met Glu Ser Lys Ala Ile Ser Asp Ala Gln Ile Thr Ala Ser
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Ser Tyr Phe Thr Asn Met Phe Ala Thr Trp Ser Pro Ser Lys Ala
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Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp Arg Pro Gln Val
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Asn Asn Pro Lys Glu Trp Leu Gln Val Asp Phe Gln Lys Thr Met
1625 1630 1635

Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser Leu Leu Thr
1640 1645 1650

Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly
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His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val Lys Val Phe
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Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp
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Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp
1700 1705 1710

Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala
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Gln Asp Leu Tyr Gly Ala Pro Pro Gly Ala Ser Pro Gly Thr Ser
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Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1760                1765                1770

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
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Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
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Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
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Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
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Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
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Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1880                1885                1890

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1895                1900                1905

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    1910                1915                1920

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1925                1930                1935

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1940                1945                1950
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Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
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1970 1975 1980

Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
1985 1990 1995

Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
2000 2005 2010

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Ala Ser Ser Glu Gln
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Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His
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His His His His
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
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```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
```

```
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960
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Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
               965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

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

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170
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Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
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Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
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Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575
```

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Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                 1585                 1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
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Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                 1615                 1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                 1630                 1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                 1645                 1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                 1660                 1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                 1675                 1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                 1690                 1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                 1705                 1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                 1720                 1725

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ala Ser Pro  Gly Thr Ser
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Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
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Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
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Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
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Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1820                1825                1830

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
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Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
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Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1880                1885                1890

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1895                1900                1905

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    1910                1915                1920

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1925                1930                1935

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1940                1945                1950

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1955                1960                1965

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1970                1975                1980

Ser Thr  Gly Ser Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1985                1990                1995
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Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
    2000   2005   2010

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

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
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Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
```

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            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
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Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780
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Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
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Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815


Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845


Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880


Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410
```

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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                 1525                 1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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<211> 1769
<212> PRT
<213> Artificial Sequence

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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380
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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605
```

```
Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
```

```
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035
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```
Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
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Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245
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```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455
```

```
Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
```

1655 1660 1665

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1670 1675 1680

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1685 1690 1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1700 1705 1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
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Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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<211> 1769
<212> PRT
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polypeptide

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Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40 45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
50 55 60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65 70 75 80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
85 90 95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
100 105 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
115 120 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
130 135 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145 150 155 160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr

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Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
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His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620
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Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845
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Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
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Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
1070 1075 1080

Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln
1085 1090 1095

Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
1100 1105 1110

Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala
1115 1120 1125

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

Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
1145 1150 1155

Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val
1160 1165 1170

Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
1175 1180 1185

Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
1190 1195 1200

Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
1205 1210 1215

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys
1220 1225 1230

Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp
1235 1240 1245

Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val
1250 1255 1260

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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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<210> 855
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
130 135 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145 150 155 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
165 170 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
180 185 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
195 200 205

```
Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
```

```
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640
```

```
Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860
```

```
Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880


Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895


Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910


Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925


Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940


Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080
```

```
Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                 1090                 1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                 1105                 1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
```

```
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
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gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca 300

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acaccagggt cgggaacagc ctcctcgtca ccaggctcct caacccccctc gggagccacg 480

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 2280

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 2340

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<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 857

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Thr Ser Glu Ser Ala
        35                  40                  45

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
    50                  55                  60

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
65                  70                  75                  80

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
                85                  90                  95

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
            100                 105                 110

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
        115                 120                 125

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
    130                 135                 140

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
145                 150                 155                 160

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
                165                 170                 175

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220
```

```
Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240


Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255


Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270


Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285


Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300


Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320


Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335


Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350


Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365


Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380


Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400


Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415


His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430


Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445
```

```
Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
```

660 665 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
675 680 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
690 695 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705 710 715 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
725 730 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
740 745 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
755 760 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
770 775 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785 790 795 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
805 810 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
820 825 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
835 840 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
850 855 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865 870 875 880

```
Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095
```

```
Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305
```

```
Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                 1435                 1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
```

```
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710
```

```
Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
```

<210> 858
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 858

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ggcgcgccaa catcagagag cgccaccct gaaagtggtc ccgggagcga gccagccaca      180

tctgggtcgg aaacgccagg cacaagtgag tctgcaactc ccgagtccgg acctggctcc      240

gagcctgcca ctagcggctc cgagactccg ggaacttccg agagcgctac accagaaagc      300

ggacccggaa ccagtaccga acctagcgag ggctctgctc cgggcagccc agccggctct      360

cctacatcca cggaggaggg cacttccgaa tccgccaccc cggagtcagg gccaggatct      420

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gggccaggga gccctgctgg atctcctacg tccactgagg aagggtcacc agcgggctcg      540

cccaccagca ctgaagaagg tgcctcgagc aacacctcag tcgtgtacaa aaagactctg      600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt      660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac      720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag      780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct      840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac      900
```

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 2340

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ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 2520

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gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 2820

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gcaaccggtc atcatcacca tcaccattga 5310

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<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 859
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro

```
            20                  25                  30

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        35                  40                  45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    50                  55                  60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65                  70                  75                  80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                85                  90                  95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            100                 105                 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        115                 120                 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480


Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495


Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510


Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525


Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540


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


Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575


Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605


Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620


Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640


Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670


Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685
```

```
Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
```

```
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
```

```
Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320
```

```
Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530
```

```
Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
```

1730 1735 1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
1760 1765

<210> 860
<211> 5310
<212> DNA
<213> Artificial Sequence

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tcggaaacgc caggcacaag tgagtctgca actcccgagt ccggacctgg ctccgagcct 180

gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc 240

ggaaccagta ccgaacctag cgagggctct gctccgggca gcccagccgg ctctcctaca 300

tccacggagg agggcacttc cgaatccgcc accccggagt cagggccagg atctgaaccc 360

gctacctcag gcagtgagac gccaggaacg agcgagtccg ctacaccgga gagtgggcca 420

gggagccctg ctggatctcc tacgtccact gaggaagggt caccagcggg ctcgcccacc 480

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ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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<210> 861
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 861
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Thr Ser Glu
20 25 30

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40 45

```
Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    50                  55                  60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65                  70                  75                  80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                85                  90                  95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            100                 105                 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        115                 120                 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    130                 135                 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145                 150                 155                 160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
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            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700
```

```
Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro
            740                 745                 750


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
        755                 760                 765


Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
    770                 775                 780


Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
785                 790                 795                 800


Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
                805                 810                 815


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            820                 825                 830


Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        835                 840                 845


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    850                 855                 860


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
865                 870                 875                 880


Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                885                 890                 895


Ala Ser Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910


Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925
```

```
Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
```

```
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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      polynucleotide

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gggagcgagc cagccacatc tgggtcggaa acgccaggca caagtgagtc tgcaactccc 180

gagtccggac ctggctccga gcctgccact agcggctccg agactccggg aacttccgag 240

agcgctacac cagaaagcgg acccggaacc agtaccgaac ctagcgaggg ctctgctccg 300

ggcagcccag ccggctctcc tacatccacg gaggagggca cttccgaatc cgccaccccg 360

gagtcagggc caggatctga acccgctacc tcaggcagtg agacgccagg aacgagcgag 420

tccgctacac cggagagtgg gccagggagc cctgctggat ctcctacgtc cactgaggaa 480

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cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 3660

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<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

```
Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285
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```
Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
```

```
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro
            740                 745                 750

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
        755                 760                 765

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
    770                 775                 780

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
785                 790                 795                 800

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
                805                 810                 815

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            820                 825                 830

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        835                 840                 845

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    850                 855                 860

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
865                 870                 875                 880

Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                885                 890                 895

Ala Ser Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940
```

```
Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155
```

```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
```

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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His His
    1760                1765
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt 240

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ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

```
Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
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Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300
```

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Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
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Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525
```

```
Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro
```

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            740                 745                 750

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
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Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
    770                 775                 780

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
785                 790                 795                 800

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
                805                 810                 815

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            820                 825                 830

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        835                 840                 845

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    850                 855                 860

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
865                 870                 875                 880

Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                885                 890                 895

Ala Ser Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960
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```
Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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<210> 867
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser

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            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
```

```
Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540
```

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Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro
            740                 745                 750

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
        755                 760                 765
```

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Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
    770                 775                 780

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
785                 790                 795                 800

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
                805                 810                 815

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            820                 825                 830

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        835                 840                 845

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    850                 855                 860

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
865                 870                 875                 880

Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                885                 890                 895

Ala Ser Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
```

```
           980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185
```

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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395
```

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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605
```

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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His His
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<210> 868
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

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<210> 869
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 869
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

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Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
```

```
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro
545                 550                 555                 560
```

```
Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                565                 570                 575

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            580                 585                 590

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        595                 600                 605

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    610                 615                 620

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
625                 630                 635                 640

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                645                 650                 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            660                 665                 670

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        675                 680                 685

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780
```

```
Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800


Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815


Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830


Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845


Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860


Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880


Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895


Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910


Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925


Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940


Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005
```

```
Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
```

```
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410
```

```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                 1435                 1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620
```

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1625 1630 1635

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1640 1645 1650

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1655 1660 1665

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1670 1675 1680

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1685 1690 1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1700 1705 1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1730 1735 1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1745 1750 1755

Ser Pro Ala Thr Gly His His His His His His
1760 1765

<210> 870
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 870
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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

ggcgcgccag gctccagccc ctccgcgagc acgggaaccg gaccaggttc gtcaccctca 180

gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt 240

gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca 300

ggatcacctg gctcaagccc tagcgcgtca accggcacgg gtccgggtgc ctcccctggc 360

acgtccagca ccggatcacc cggatcgagc ccatccgcct caaccggaac cggacccggt 420

acaccagggt cgggaacagc ctcctcgtca ccaggctcct caacccccctc gggagccacg 480

ggttcgcccg gttcgtcaac gccttccgga gcaactggta gccccggagc atcgccagga 540

acttcgagca cggggtcgcc cgcctcgagc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

gaggaacccc aactacgaat gaaaaataat gaagaagcgg aagactatga tgatgatctt 1500

actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg gcgcgccagg tgcctcgccg 1680

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ggctcatccc ccagcgccag cactggaaca ggtcctggca ctcctggttc cggtacggca 1800

tcgtcatccc cgggaagctc aacaccgtcc ggagcgacag gatcacctgg ctcgtcacct 1860

tcggcgtcaa ctggaacggg gccaggggcc tcacccggaa cgtcctcgac tgggtcgcct 1920

ggtacgccgg gatcaggaac ggcctcatcc tcgcctgggt cctcaacgcc ctcgggtgcg 1980

actggttcgc cgggaactcc tggctcgggg acggcctcgt cgtcgcctgg ggcatcaccg 2040

gggacgagct ccacggggtc ccctggagcg tcaccgggga cctcctcgac aggtagcccg 2100

gcctcgagcg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 2160

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 2220

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 2280

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 2340

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 2400

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 2460

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 2520

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 2580

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ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 3060

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 3120

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 3180

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 3240

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 3300

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 3360

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 3420

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 3480

catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 3540

ttcagaaatc aggcctctcg tccctattcc ttctattcta gccttatttc ttatgaggaa 3600

gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 3660

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 3720

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 3780

cttctggtct gccacactaa cacactgaac cctgctcatg ggagacaagt gacagtacag 3840

gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3900

atggaaagaa actgcagggc tccctgcaat atccagatgg aagatcccac ttttaaagag 3960

aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 4020

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 4080

tctattcatt tcagtggaca tgtgttcact gtacgaaaaa aagaggagta taaaatggca 4140

ctgtacaatc tctatccagg tgtttttgag acagtggaaa tgttaccatc caaagctgga 4200

atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 4260

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tttcagatta cagcttcagg acaatatgga cagtgggccc caaagctggc cagacttcat 4380

tattccggat caatcaatgc ctggagcacc aaggagccct tttcttggat caaggtggat 4440

ctgttggcac caatgattat tcacggcatc aagacccagg gtgcccgtca gaagttctcc 4500

agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 4560

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 4620

ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 4680

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 4740

agcatgccat tgggaatgga gagtaaagca atatcagatg cacagattac tgcttcatcc 4800

tactttacca atatgtttgc cacctggtct ccttcaaaag ctcgacttca cctccaaggg 4860

aggagtaatg cctggagacc tcaggtgaat aatccaaaag agtggctgca agtggacttc 4920

cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4980

atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 5040

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aactctctag acccaccgtt actgactcgc taccttcgaa ttcaccccca gagttgggtg 5160

caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcc 5220

ggatcacctg gggccgaaac ggccgaacaa aaactcatct cagaagagga tctgtcacct 5280

gcaaccggtc atcatcacca tcaccattga 5310

<210> 871
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 871
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

```
Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365
```

```
Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro
545                 550                 555                 560

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                565                 570                 575

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
```

```
            580                 585                 590

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        595                 600                 605

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    610                 615                 620

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
625                 630                 635                 640

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                645                 650                 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            660                 665                 670

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        675                 680                 685

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800
```

```
Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020
```

```
Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230
```

```
Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
```

```
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635
```

```
Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
```

<210> 872
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc 180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt 300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

acccccctcgg gagccacggg ttcgcccggt tcgtcaacgc cttccggagc aactggtagc 480

cccggagcat cgccaggaac ttcgagcacg gggtcgcccg cctcgagcga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

gaggaacccc aactacgaat gaaaaataat gaagaagcgg aagactatga tgatgatctt 1500

actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg gcgcgccagg tgcctcgccg 1680

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tcggcgtcaa ctggaacggg gccaggggcc tcacccggaa cgtcctcgac tgggtcgcct 1920

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actggttcgc cgggaactcc tggctcgggg acggcctcgt cgtcgcctgg ggcatcaccg 2040

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gcctcgagcg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 2160

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 2220

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 2280

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 2340

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 2400

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 2460

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 2520

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 2580

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 2640

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ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 3060

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 3120

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gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 3300

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 3360

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 3420

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 3480

catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 3540

ttcagaaatc aggcctctcg tccctattcc ttctattcta gccttatttc ttatgaggaa 3600

gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 3660

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 3720

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 3780

cttctggtct gccacactaa cacactgaac cctgctcatg ggagacaagt gacagtacag 3840

gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3900

atggaaagaa actgcagggc tccctgcaat atccagatgg aagatcccac ttttaaagag 3960

aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 4020

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 4080

tctattcatt tcagtggaca tgtgttcact gtacgaaaaa aagaggagta taaaatggca 4140

ctgtacaatc tctatccagg tgtttttgag acagtggaaa tgttaccatc caaagctgga 4200

atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 4260

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cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 4740

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tactttacca atatgtttgc cacctggtct ccttcaaaag ctcgacttca cctccaaggg 4860

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cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4980

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caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcc 5220

ggatcacctg gggccgaaac ggccgaacaa aaactcatct cagaagagga tctgtcacct 5280

gcaaccggtc atcatcacca tcaccattga 5310

<210> 873
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 873
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Thr Ser Glu
20 25 30

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40 45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
50 55 60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65 70 75 80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
85 90 95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
100 105 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
115 120 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
130 135 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145 150 155 160

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Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380
```

```
Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro
545                 550                 555                 560

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                565                 570                 575

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            580                 585                 590

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        595                 600                 605
```

```
Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    610                 615                 620

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
625                 630                 635                 640

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                645                 650                 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            660                 665                 670

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        675                 680                 685

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
```

```
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035
```

```
Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245
```

```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455
```

```
Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
```

```
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
```

<210> 874
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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ctcggtgagc tgcctgtggg cgcgccaaca tcagagagcg ccacccctga aagtggtccc 120

gggagcgagc cagccacatc tgggtcggaa acgccaggca caagtgagtc tgcaactccc 180

gagtccggac ctggctccga gcctgccact agcggctccg agactccggg aacttccgag 240

agcgctacac cagaaagcgg acccggaacc agtaccgaac ctagcgaggg ctctgctccg 300

ggcagcccag ccggctctcc tacatccacg gaggagggca cttccgaatc cgccaccccg 360

gagtcagggc caggatctga acccgctacc tcaggcagtg agacgccagg aacgagcgag 420

tccgctacac cggagagtgg gccagggagc cctgctggat ctcctacgtc cactgaggaa 480

gggtcaccag cgggctcgcc caccagcact gaagaaggtg cctcgagcga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

gaggaacccc aactacgaat gaaaaataat gaagaagcgg aagactatga tgatgatctt 1500

actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg gcgcgccagg tgcctcgccg 1680

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actggttcgc cgggaactcc tggctcgggg acggcctcgt cgtcgcctgg ggcatcaccg 2040

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 2280

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 2340

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 2400

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ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 2520

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caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 2640

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ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 3060

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ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 3420

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catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 3540

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gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 3660

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tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 3780

cttctggtct gccacactaa cacactgaac cctgctcatg ggagacaagt gacagtacag 3840

gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3900

atggaaagaa actgcagggc tccctgcaat atccagatgg aagatcccac ttttaaagag 3960

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atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 4260

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ggatcacctg gggccgaaac ggccgaacaa aaactcatct cagaagagga tctgtcacct 5280

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<210> 875
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 875
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr

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            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620
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Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640


Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655


Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670


Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685


Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700


Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro
            740                 745                 750


Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
        755                 760                 765


Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    770                 775                 780


Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
785                 790                 795                 800


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
                805                 810                 815


Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            820                 825                 830


Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        835                 840                 845
```

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Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
    850                 855                 860

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
865                 870                 875                 880

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                885                 890                 895

Ala Ser Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
```

1055 1060 1065

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
1070 1075 1080

Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln
1085 1090 1095

Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
1100 1105 1110

Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala
1115 1120 1125

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

Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
1145 1150 1155

Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val
1160 1165 1170

Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
1175 1180 1185

Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
1190 1195 1200

Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
1205 1210 1215

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys
1220 1225 1230

Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp
1235 1240 1245

Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val
1250 1255 1260

```
Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470
```

```
Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680
```

```
Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765


<210> 876
<211> 5310
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt      300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca      360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca      420

acccccctcgg gagccacggg ttcgcccggt tcgtcaacgc cttccggagc aactggtagc      480

cccggagcat cgccaggaac ttcgagcacg gggtcgcccg cctcgagcga cgcaagattt      540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg      600
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ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

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tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

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cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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atacaacgct ttctccccaa tccagctggc gcgccaggtg cctcgccggg aacatcatca 2280

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<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
130 135 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145 150 155 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
165 170 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
180 185 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
195 200 205

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Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
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Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
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            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro
            740                 745                 750

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
        755                 760                 765

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    770                 775                 780

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
785                 790                 795                 800

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
                805                 810                 815

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            820                 825                 830

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        835                 840                 845

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
    850                 855                 860
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Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
865                 870                 875                 880


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                885                 890                 895


Ala Ser Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910


Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925


Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940


Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                 1090                 1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                 1105                 1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 878

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Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        35                  40                  45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    50                  55                  60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65                  70                  75                  80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                85                  90                  95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            100                 105                 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        115                 120                 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    130                 135                 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145                 150                 155                 160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220
```

```
Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240


Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255


Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270


Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285


Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300


Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320


Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335


Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350


Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365


Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380


Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400


Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415


His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430


Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445
```

```
Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
```

```
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro
            740                 745                 750

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
        755                 760                 765

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    770                 775                 780

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
785                 790                 795                 800

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
                805                 810                 815

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            820                 825                 830

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        835                 840                 845

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
    850                 855                 860

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
865                 870                 875                 880
```

```
Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                885                 890                 895


Ala Ser Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910


Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925


Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940


Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095
```

```
Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
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Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
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```
Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                 1435                 1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
```

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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710
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Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
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Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
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Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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<210> 881
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 881
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Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
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Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65                  70                  75                  80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                85                  90                  95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            100                 105                 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        115                 120                 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
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```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
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Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685
```

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Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro
            740                 745                 750

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
        755                 760                 765

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    770                 775                 780

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
785                 790                 795                 800

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
                805                 810                 815

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            820                 825                 830

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        835                 840                 845

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
    850                 855                 860

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
865                 870                 875                 880

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                885                 890                 895

Ala Ser Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
```

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            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
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Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                 1135                 1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320
```

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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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Ser Pro Ala Thr Gly His His His His His His
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polynucleotide

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gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc 240

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<210> 883
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Thr Ser Glu Ser Ala
35 40 45

```
Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
    50                  55                  60

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
65                  70                  75                  80

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
                85                  90                  95

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
            100                 105                 110

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
        115                 120                 125

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
    130                 135                 140

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
145                 150                 155                 160

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
                165                 170                 175

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
```

```
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700
```

```
Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro
            740                 745                 750


Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
        755                 760                 765


Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    770                 775                 780


Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
785                 790                 795                 800


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
                805                 810                 815


Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            820                 825                 830


Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        835                 840                 845


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
    850                 855                 860


Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
865                 870                 875                 880


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                885                 890                 895


Ala Ser Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910


Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925
```

```
Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
```

```
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755
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Ser Pro Ala Thr Gly His His His His His His
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ggcgcgccaa catcagagag cgccaccct gaaagtggtc ccgggagcga gccagccaca   180

tctgggtcgg aaacgccagg cacaagtgag tctgcaactc ccgagtccgg acctggctcc   240

gagcctgcca ctagcggctc cgagactccg ggaacttccg agagcgctac accagaaagc   300

ggacccggaa ccagtaccga acctagcgag ggctctgctc cgggcagccc agccggctct   360

cctacatcca cggaggaggg cacttccgaa tccgccaccc cggagtcagg gccaggatct   420

gaacccgcta cctcaggcag tgagacgcca ggaacgagcg agtccgctac accggagagt   480

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca   960

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atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg   1200

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<212> PRT
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<220>
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

```
Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
```

```
Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
```

```
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720
```

```
Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940
```

```
Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155
```

```
Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
```

```
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560
```

```
Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Pro Gly
    1580                1585                1590

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1595                1600                1605

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr
    1610                1615                1620

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1625                1630                1635

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1640                1645                1650

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly
    1655                1660                1665

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1670                1675                1680

Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1685                1690                1695

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1700                1705                1710

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly
    1715                1720                1725

Ser Gly  Thr Ala Ser Ser Ser  Ala Ser Ser Glu Gln  Lys Leu Ile
    1730                1735                1740

Ser Glu  Glu Asp Leu Ser Pro  Ala Thr Gly His His  His His His
    1745                1750                1755

His
```

<210> 886
<211> 5280
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<211> 1903
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 887
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
```

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305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525
```

```
Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750
```

```
Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975
```

```
Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
```

```
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380
```

```
Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590
```

```
Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ser Ser Pro  Ser Ala Ser
    1730                1735                1740

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1745                1750                1755

Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1760                1765                1770

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1775                1780                1785

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1790                1795                1800
```

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
1805 1810 1815

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
1820 1825 1830

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
1835 1840 1845

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
1850 1855 1860

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
1865 1870 1875

Ser Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
1880 1885 1890

Pro Ala Thr Gly His His His His His His
1895 1900

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<211> 5712
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<213> Artificial Sequence

<220>
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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<211> 1903
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 889
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
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Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
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Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
```

785 790 795 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
805 810 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
820 825 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
835 840 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
850 855 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865 870 875 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
885 890 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
900 905 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
915 920 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
930 935 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945 950 955 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
965 970 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
980 985 990

Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
995 1000 1005

```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215
```

```
Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425
```

```
Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                 1525                 1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                 1555                 1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                 1570                 1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1580                 1585                 1590

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1595                 1600                 1605

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1610                 1615                 1620

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
```

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    1625                1630                1635

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1640                1645                1650

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1655                1660                1665

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1670                1675                1680

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1685                1690                1695

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1700                1705                1710

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1715                1720                1725

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1730                1735                1740

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1745                1750                1755

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1760                1765                1770

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1775                1780                1785

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                1795                1800

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1805                1810                1815

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1820                1825                1830
```

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1835 1840 1845

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
1850 1855 1860

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1865 1870 1875

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
1880 1885 1890

Pro Ala Thr Gly His His His His His His
1895 1900

<210> 890
<211> 5712
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 890
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

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cctgctcatg ggagacaagt gacagtacag gaatttgctc tgtttttcac catctttgat 3420

gagaccaaaa gctggtactt cactgaaaat atggaaagaa actgcagggc tccctgcaat 3480

atccagatgg aagatcccac ttttaaagag aattatcgct tccatgcaat caatggctac 3540

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tcagcacccg gctctgagcc ggccacaagt ggcagtgaga cacccggcac ttcagagagt 5580

gccacccccg agagtggccc aggcactagt accgagccct ctgaaggcag tgcgccagcc 5640

tcgagcgaac aaaaactcat ctcagaagag gatctgtcac ctgcaaccgg tcatcatcac 5700

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<210> 891
<211> 1903
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 891
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
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385 390 395 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
405 410 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
420 425 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
435 440 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
450 455 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465 470 475 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
485 490 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
500 505 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
515 520 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
530 535 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545 550 555 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
565 570 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
580 585 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
595 600 605

```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830
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Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455
```

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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Pro Gly
    1580                1585                1590

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1595                1600                1605

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1610                1615                1620

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1625                1630                1635

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1640                1645                1650

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1655                1660                1665
```

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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1670                1675                1680

Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1685                1690                1695

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1700                1705                1710

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1715                1720                1725

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1730                1735                1740

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1745                1750                1755

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1760                1765                1770

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1775                1780                1785

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1790                1795                1800

Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1805                1810                1815

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1820                1825                1830

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Pro
    1835                1840                1845

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr
    1850                1855                1860

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1865                1870                1875
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Ser Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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<211> 5712
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<213> Artificial Sequence

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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

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gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

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gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat   1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt   1080

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ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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<211> 2047
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<223> Description of Artificial Sequence: Synthetic

polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
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Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
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```
Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Ser Glu
            740                 745                 750

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        755                 760                 765

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    770                 775                 780

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
785                 790                 795                 800

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                805                 810                 815

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            820                 825                 830

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        835                 840                 845

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    850                 855                 860

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
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865                 870                 875                 880

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                885                 890                 895

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            900                 905                 910

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        915                 920                 925

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    930                 935                 940

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
945                 950                 955                 960

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                965                 970                 975

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            980                 985                 990

Glu Pro Ser Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
        995                 1000                1005

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1010                1015                1020

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1025                1030                1035

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

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080
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Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290
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Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500
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Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                 1510                 1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                 1525                 1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                 1540                 1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                 1555                 1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                 1570                 1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                 1585                 1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                 1600                 1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                 1615                 1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                 1630                 1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                 1645                 1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                 1660                 1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                 1675                 1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                 1690                 1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
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    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1730                1735                1740

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1745                1750                1755

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1760                1765                1770

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1775                1780                1785

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1790                1795                1800

Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1805                1810                1815

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1820                1825                1830

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1835                1840                1845

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1850                1855                1860

Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1865                1870                1875

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    1895                1900                1905
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Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
1910 1915 1920

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
1925 1930 1935

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser
1940 1945 1950

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
1955 1960 1965

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
1970 1975 1980

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
1985 1990 1995

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
2000 2005 2010

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Ala Ser Ser Glu Gln
2015 2020 2025

Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His
2030 2035 2040

His His His His
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    50                  55                  60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65                  70                  75                  80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85                  90                  95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255
```

```
Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro
545                 550                 555                 560

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                565                 570                 575

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            580                 585                 590

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        595                 600                 605

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    610                 615                 620

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
625                 630                 635                 640

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                645                 650                 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            660                 665                 670

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        675                 680                 685

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp
```

```
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910
```

```
Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925


Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940


Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125
```

```
Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
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Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro

```
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Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
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Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495
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His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720
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Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Gly Ala Pro
            820                 825                 830

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
        835                 840                 845

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
                885                 890                 895

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            900                 905                 910

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        915                 920                 925

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
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    930                 935                 940

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
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Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                965                 970                 975

Ala Ser Ser Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
            980                 985                 990

Val Phe Gln Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
        995                 1000                1005

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1010                1015                1020

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1025                1030                1035

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1040                1045                1050

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1055                1060                1065

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1070                1075                1080

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1085                1090                1095

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1100                1105                1110

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
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Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
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Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1190                1195                1200

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1235                1240                1245

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1250                1255                1260

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
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Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                1315                1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
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Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
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Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
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Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
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Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
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Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
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Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560
```

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His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
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Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
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Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                1600                1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
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Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                1675                1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                1720                1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
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Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
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<212> PRT
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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
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Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
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Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
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Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Gly
            820                 825                 830

Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
        835                 840                 845

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
    850                 855                 860

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
865                 870                 875                 880

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
                885                 890                 895

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            900                 905                 910

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
        915                 920                 925

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
    930                 935                 940

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
945                 950                 955                 960
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Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
               965                 970                 975

Pro Gly Ala Ser Ser Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
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Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
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Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
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Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser
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Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
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Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
1265 1270 1275

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
1280 1285 1290

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Ala Pro
1295 1300 1305

Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg
1310 1315 1320

Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu
1325 1330 1335

Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met
1340 1345 1350

Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His Val
1355 1360 1365

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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                 1735                 1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 901
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
```

```
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750
```

```
Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Gly Ala Pro
            820                 825                 830

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
        835                 840                 845

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
                885                 890                 895

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            900                 905                 910

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        915                 920                 925

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
    930                 935                 940

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
945                 950                 955                 960

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                965                 970                 975
```

```
Ala Ser Ser Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
            980                 985                 990

Val Phe Gln Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
        995                 1000                1005

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1010                1015                1020

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1025                1030                1035

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1040                1045                1050

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1055                1060                1065

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1070                1075                1080

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1085                1090                1095

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1100                1105                1110

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1115                1120                1125

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1130                1135                1140

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1145                1150                1155

Arg Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1160                1165                1170

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1175                1180                1185
```

```
Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1190                 1195                 1200

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1205                 1210                 1215

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1220                 1225                 1230

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1235                 1240                 1245

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1250                 1255                 1260

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1265                 1270                 1275

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1280                 1285                 1290

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1295                 1300                 1305

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                 1315                 1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1325                 1330                 1335

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                 1345                 1350

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                 1360                 1365

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                 1375                 1380

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
```

```
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1535                1540                1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                1570                1575

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1580                1585                1590
```

```
Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                1600                1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1610                1615                1620

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1625                1630                1635

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1640                1645                1650

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                1660                1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                1675                1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                1720                1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1730                1735                1740

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    1745                1750                1755

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
    1760                1765                1770


<210> 902
<211> 5319
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
```

polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

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gtggacttcc agaagacaat gaaagtcaca ggagtaacta ctcagggagt aaaatctctg 4980

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tacggcgccg gatcacctgg ggccgaaacg gccgaacaaa aactcatctc agaagaggat 5280

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<210> 903
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 903
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

```
Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
```

770 775 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785 790 795 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
805 810 815

Met Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
820 825 830

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
835 840 845

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
850 855 860

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
865 870 875 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
885 890 895

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
900 905 910

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
915 920 925

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
930 935 940

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
945 950 955 960

Ser Ala Pro Gly Ala Ser Ser Ser Ser Ser Pro His Val Leu Arg Asn
965 970 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
980 985 990

```
Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155


Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170


Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185


Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1190                1195                1200
```

```
Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                 1210                 1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                 1225                 1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1235                 1240                 1245

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1250                 1255                 1260

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                 1270                 1275

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1280                 1285                 1290

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                 1300                 1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410
```

```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
```

1610 1615 1620

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1625 1630 1635

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1640 1645 1650

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1655 1660 1665

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1670 1675 1680

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1685 1690 1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1700 1705 1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1730 1735 1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1745 1750 1755

Ser Pro Ala Thr Gly His His His His His His
1760 1765

<210> 904
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 904
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

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cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gggcgcgcca 2460

acgtccgaaa gtgctacccc tgagtcaggc cctggtagtg agcctgccac aagcggaagc 2520

gaaactccgg ggacctcaga gtctgccact cccgaatcgg ggccaggctc tgaaccggcc 2580

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acatcagaat ctgctactcc cgagagtgga cccggtacct ccactgagcc cagcgagggg 2880

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atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 4260

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gcaaccggtc atcatcacca tcaccattga 5310

<210> 905
<211> 1772
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 905
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn

```
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
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```
Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
```

```
Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800
```

```
Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Gly Ala Pro
            820                 825                 830

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
        835                 840                 845

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
                885                 890                 895

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            900                 905                 910

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        915                 920                 925

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
    930                 935                 940

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
945                 950                 955                 960

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                965                 970                 975

Ala Ser Ser Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
            980                 985                 990

Val Phe Gln Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
        995                 1000                1005

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
```

```
    1010                1015                1020

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1025                1030                1035

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1040                1045                1050

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1055                1060                1065

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1070                1075                1080

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1085                1090                1095

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1100                1105                1110

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1115                1120                1125

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1130                1135                1140

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1145                1150                1155

Arg Ala  Pro Cys Asn Ile Gly  Ala Pro Gly Thr Pro  Gly Ser Gly
    1160                1165                1170

Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1175                1180                1185

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1190                1195                1200

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser
    1205                1210                1215
```

```
Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly
    1220                1225                1230

Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1235                1240                1245

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1250                1255                1260

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser
    1265                1270                1275

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1280                1285                1290

Gly Ala  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1295                1300                1305

Gly Ser  Pro Ala Ser Ser Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                1315                1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1325                1330                1335

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                1345                1350

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                1360                1365

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                1375                1380

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425
```

```
Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1535                1540                1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                1570                1575

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1580                1585                1590

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                1600                1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1610                1615                1620

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1625                1630                1635
```

```
Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1640                1645                1650

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                1660                1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                1675                1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                1720                1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1730                1735                1740

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    1745                1750                1755

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
    1760                1765                1770
```

<210> 906
<211> 5319
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

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acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagggc gcgccaggta cacccggatc gggtacagcg 2520

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ggaagccccg gcgcgtcgcc cgggacatca agcacaggtt ccccgggatc gagcacgccg 3840

tccggagcca ctggatcacc agggagctcg acaccttccg gcgcaacggg atcgcccgga 3900

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gtggacttcc agaagacaat gaaagtcaca ggagtaacta ctcagggagt aaaatctctg 4980

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tacggcgccg gatcacctgg ggccgaaacg gccgaacaaa aactcatctc agaagaggat 5280

ctgtcacctg caaccggtca tcatcaccat caccattga 5319

<210> 907
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 907
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

```
His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
```

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    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
```

```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815
```

```
Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Gly
            820                 825                 830

Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
        835                 840                 845

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
    850                 855                 860

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
865                 870                 875                 880

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
                885                 890                 895

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            900                 905                 910

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
        915                 920                 925

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
    930                 935                 940

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
945                 950                 955                 960

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                965                 970                 975

Pro Gly Ala Ser Ser Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1190                1195                1200

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                1210                1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                1225                1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
```

```
    1235                1240                1245

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1250                1255                1260

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                1270                1275

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1280                1285                1290

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                1300                1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440
```

```
Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650
```

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                 1735                 1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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polynucleotide

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gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<211> 1769
<212> PRT
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<223> Description of Artificial Sequence: Synthetic
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
165 170 175

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Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
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Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
```

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    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830
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```
Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050
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Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260
```

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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1475 1480 1485

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1490 1495 1500

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1505 1510 1515

Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe
1520 1525 1530

Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
1535 1540 1545

Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser
1550 1555 1560

Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn
1565 1570 1575

Ser Cys Ser Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp
1580 1585 1590

Ala Gln Ile Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr
1595 1600 1605

Trp Ser Pro Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn
1610 1615 1620

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1625 1630 1635

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1640 1645 1650

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1655 1660 1665

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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
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<213> Artificial Sequence

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<212> PRT

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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
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Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
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Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
115 120 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
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Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145 150 155 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

```
Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
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Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
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Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
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Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
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```

```
His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
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Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
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Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
```

```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
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```
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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
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Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
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Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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```
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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<210> 913
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
            20   25   30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
        35   40   45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    50   55   60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65   70   75   80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85   90   95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100   105   110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115   120   125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130   135   140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145   150   155   160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165   170   175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro

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Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430
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Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
```

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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
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1085 1090 1095

Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
1100 1105 1110

Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala
1115 1120 1125

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

Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
1145 1150 1155

Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val
1160 1165 1170

Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
1175 1180 1185

Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
1190 1195 1200

Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
1205 1210 1215

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys
1220 1225 1230

Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp
1235 1240 1245

Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val
1250 1255 1260

Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr
1265 1270 1275

Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys
1280 1285 1290

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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710
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Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1715   1720   1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1730   1735   1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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<211> 5310
<212> DNA
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<223> Description of Artificial Sequence: Synthetic
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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca   180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca   240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc   300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca   360

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<210> 915
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Thr Ser Glu Ser Ala
        35                  40                  45

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
    50                  55                  60

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
65                  70                  75                  80

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
                85                  90                  95

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
            100                 105                 110

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
        115                 120                 125

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
    130                 135                 140

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
145                 150                 155                 160

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
                165                 170                 175

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
```

```
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670
```

```
Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895
```

```
Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
```

```
Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
```

```
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515
```

```
Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725
```

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1730   1735   1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
    1745   1750   1755

Ser Pro Ala Thr Gly His His His His His His
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      polynucleotide

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ggcgcgccaa catcagagag cgccaccct gaaagtggtc ccgggagcga gccagccaca   180

tctgggtcgg aaacgccagg cacaagtgag tctgcaactc ccgagtccgg acctggctcc   240

gagcctgcca ctagcggctc cgagactccg ggaacttccg agagcgctac accagaaagc   300

ggacccggaa ccagtaccga acctagcgag ggctctgctc cgggcagccc agccggctct   360

cctacatcca cggaggaggg cacttccgaa tccgccaccc cggagtcagg gccaggatct   420

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cccaccagca ctgaagaagg tgcctcgagc aacacctcag tcgtgtacaa aaagactctg   600

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag   780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct   840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac   900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca   960

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<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
        35                  40                  45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50                  55                  60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255
```

```
Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
```

```
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
```

```
Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125
```

```
Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
```

```
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740
```

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
    1745   1750   1755

Ser Pro Ala Thr Gly His His His His His His
    1760   1765

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<211> 5310
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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ggcgcgccag gctccagccc ctccgcgagc acgggaaccg gaccaggttc gtcaccctca   180

gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt   240

gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca   300

ggatcacctg gctcaagccc tagcgcgtca accggcacgg gtccgggtgc ctcccctggc   360

acgtccagca ccggatcacc cggatcgagc ccatccgcct caaccggaac cggacccggt   420

acaccagggt cgggaacagc ctcctcgtca ccaggctcct caacccccctc gggagccacg   480

ggttcgcccg gttcgtcaac gccttccgga gcaactggta gccccggagc atcgccagga   540

acttcgagca cggggtcgcc cgcctcgagc aacacctcag tcgtgtacaa aaagactctg   600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt   660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac   720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag   780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct   840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac   900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca   960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag   1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca   1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa   1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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ggatcacctg gggccgaaac ggccgaacaa aaactcatct cagaagagga tctgtcacct 5280

gcaaccggtc atcatcacca tcaccattga 5310

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<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 919
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Thr Ser Glu
20 25 30

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40 45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro

```
    50                  55                  60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65                  70                  75                  80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                85                  90                  95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            100                 105                 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        115                 120                 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    130                 135                 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145                 150                 155                 160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270
```

```
Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495
```

```
Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
```

```
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140
```

```
Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
```

1760 1765

<210> 920
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gggagcgagc cagccacatc tgggtcggaa acgccaggca caagtgagtc tgcaactccc 180

gagtccggac ctggctccga gcctgccact agcggctccg agactccggg aacttccgag 240

agcgctacac cagaaagcgg acccggaacc agtaccgaac ctagcgaggg ctctgctccg 300

ggcagcccag ccggctctcc tacatccacg gaggagggca cttccgaatc cgccaccccg 360

gagtcagggc caggatctga acccgctacc tcaggcagtg agacgccagg aacgagcgag 420

tccgctacac cggagagtgg gccagggagc cctgctggat ctcctacgtc cactgaggaa 480

gggtcaccag cgggctcgcc caccagcact gaagaaggtg cctcgagcga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

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tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

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agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

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<210> 921
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 921
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
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    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Gly
385                 390                 395                 400

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                405                 410                 415

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            420                 425                 430

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        435                 440                 445

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    450                 455                 460

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
465                 470                 475                 480

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                485                 490                 495

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            500                 505                 510
```

```
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        515                 520                 525

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
```

```
Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960
```

```
Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
               965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
```

```
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365
```

```
Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575
```

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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His His
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<213> Artificial Sequence

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polynucleotide

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
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Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750
```

```
Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975
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Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990


Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005


Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020


Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035


Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050


Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
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<213> Artificial Sequence

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polynucleotide

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

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Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
```

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Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
```

```
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Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
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Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
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Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
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Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
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Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
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Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035


Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050


Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1655 1660 1665

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Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
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Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
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Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
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tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 3780

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gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3900

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aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 4020

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 4080

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tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 4620

ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 4680

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<210> 927
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn

```
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Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
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Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
```

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Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Gly Ala Pro Gly Thr Pro
        755                 760                 765

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
    770                 775                 780

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
785                 790                 795                 800
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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
                805                 810                 815

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
            820                 825                 830

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        835                 840                 845

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
    850                 855                 860

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
865                 870                 875                 880

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                885                 890                 895

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990

Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
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1010 1015 1020

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
1025 1030 1035

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
1040 1045 1050

Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
1055 1060 1065

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
1070 1075 1080

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
1085 1090 1095

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
1100 1105 1110

Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
1115 1120 1125

Ala Ser Ser Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu
1130 1135 1140

Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
1145 1150 1155

Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val
1160 1165 1170

Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
1175 1180 1185

Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
1190 1195 1200

Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
1205 1210 1215

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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
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<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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<210> 929
<211> 1772
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

```
His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
```

```
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
```

```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Gly Ala Pro Gly Thr Pro
        755                 760                 765

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
    770                 775                 780

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
785                 790                 795                 800

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
                805                 810                 815
```

```
Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
            820                 825                 830

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        835                 840                 845

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
    850                 855                 860

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
865                 870                 875                 880

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                885                 890                 895

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035
```

```
Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
```

```
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                1315                1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1325                1330                1335

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                1345                1350

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                1360                1365

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                1375                1380

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440
```

```
Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                 1450                 1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                 1465                 1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                 1480                 1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                 1495                 1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                 1510                 1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                 1525                 1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1535                 1540                 1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                 1555                 1560

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                 1570                 1575

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1580                 1585                 1590

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                 1600                 1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1610                 1615                 1620

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1625                 1630                 1635

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1640                 1645                 1650
```

```
Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                1660                1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                1675                1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                1720                1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1730                1735                1740

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    1745                1750                1755

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
    1760                1765                1770
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<211> 5319
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

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<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
115 120 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
130 135 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145 150 155 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

```
Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
```

```
Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
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```
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830
```

```
Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050
```

```
Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                1165                1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                1180                1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                1225                1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                1240                1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1250                1255                1260
```

```
Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                 1270                 1275

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                 1285                 1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                 1435                 1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
```

```
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665
```

```
Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
```

<210> 932
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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tcggaaacgc caggcacaag tgagtctgca actcccgagt ccggacctgg ctccgagcct 180

gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc 240

ggaaccagta ccgaacctag cgagggctct gctccgggca gcccagccgg ctctcctaca 300

tccacggagg agggcacttc cgaatccgcc accccggagt cagggccagg atctgaaccc 360

gctacctcag gcagtgagac gccaggaacg agcgagtccg ctacaccgga gagtgggcca 420

gggagccctg ctggatctcc tacgtccact gaggaagggt caccagcggg ctcgcccacc 480

agcactgaag aaggtgcctc gagcagtgat ctcggtgagc tgcctgtgga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

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tcagaatctg ctactcccga gagtggaccc ggtacctcca ctgagcccag cgaggggagt 3900

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<210> 933
<211> 1769
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 933
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
130 135 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145 150 155 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

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Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
```

```
His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
```

```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
```

```
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065
```

```
Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                1165                1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                1180                1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                1225                1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                1240                1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1250                1255                1260

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                1270                1275
```

```
Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                1285                1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
```

1685 1690 1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1700 1705 1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1730 1735 1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1745 1750 1755

Ser Pro Ala Thr Gly His His His His His His
1760 1765

<210> 934
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

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<210> 935
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Thr Ser Glu
            20   25   30

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        35   40   45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    50   55   60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65   70   75   80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                85   90   95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            100   105   110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        115   120   125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    130   135   140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145   150   155   160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
                165   170   175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro

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    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430
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Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
```

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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
               885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
```

1085 1090 1095

Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val
1100 1105 1110

Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr
1115 1120 1125

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

Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Gly Ala
1145 1150 1155

Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
1160 1165 1170

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
1175 1180 1185

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
1190 1195 1200

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
1205 1210 1215

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
1220 1225 1230

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser
1235 1240 1245

Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
1250 1255 1260

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
1265 1270 1275

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
1280 1285 1290

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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710
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Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1715   1720   1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1730   1735   1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
    1745   1750   1755

Ser Pro Ala Thr Gly His His His His His His
    1760   1765

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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
        35                  40                  45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    50                  55                  60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65                  70                  75                  80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85                  90                  95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
```

```
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670
```

```
Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895
```

```
Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110
```

```
Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1130                1135                1140

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                1165                1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                1180                1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                1225                1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                1240                1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1250                1255                1260

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                1270                1275

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                1285                1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
```

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    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725
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Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
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Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50                  55                  60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255
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```
Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
```

```
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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```

```
Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
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Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
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Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                1240                1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 4020

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 4080

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agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 4560

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 4620

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<210> 941
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 941
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly

```
    50                  55                  60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270
```

```
Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495
```

```
Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
```

```
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

```
Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1235                1240                1245

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1280                1285                1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
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1760 1765

<210> 942
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt 240

gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca 300

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ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

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<210> 943
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

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Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85                  90                  95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
```

```
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510
```

```
Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
```

```
Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960
```

```
Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
               965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
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1160 1165 1170

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
1175 1180 1185

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
1190 1195 1200

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
1205 1210 1215

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
1220 1225 1230

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
1235 1240 1245

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
1250 1255 1260

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
1265 1270 1275

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala
1280 1285 1290

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Ala Pro
1295 1300 1305

Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg
1310 1315 1320

Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu
1325 1330 1335

Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met
1340 1345 1350

Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His Val
1355 1360 1365

```
Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575
```

```
Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His His
    1760                1765
```

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<211> 5310

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc 180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

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ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

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ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

```
Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
```

```
Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
```

```
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750
```

```
Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975
```

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Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185
```

```
Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1190                 1195                 1200

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                 1210                 1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                 1225                 1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1235                 1240                 1245

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1250                 1255                 1260

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                 1270                 1275

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1280                 1285                 1290

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                 1300                 1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
```

```
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590
```

```
Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
```

<210> 946
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polynucleotide

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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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<210> 947
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 947
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

```
Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
```

```
Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
```

```
Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
```

```
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990
```

```
Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155


Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170


Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185


Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1190                1195                1200
```

```
Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                 1210                 1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                 1225                 1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1235                 1240                 1245

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1250                 1255                 1260

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                 1270                 1275

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1280                 1285                 1290

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                 1300                 1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410
```

```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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1610 1615 1620

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1625 1630 1635

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1640 1645 1650

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1655 1660 1665

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1670 1675 1680

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1685 1690 1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1700 1705 1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1730 1735 1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1745 1750 1755

Ser Pro Ala Thr Gly His His His His His His
1760 1765

<210> 948
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt 240

gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca 300

ggatcacctg gctcaagccc tagcgcgtca accggcacgg gtccgggtgc ctcccctggc 360

acgtccagca ccggatcacc cggatcgagc ccatccgcct caaccggaac cggacccggt 420

acaccagggt cgggaacagc ctcctcgtca ccaggctcct caacccctc gggagccacg 480

ggttcgcccg gttcgtcaac gccttccgga gcaactggta gccccggagc atcgccagga 540

acttcgagca cggggtcgcc cgcctcgagc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg acagaagtta taaaagtcaa 1680

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agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

ttaccaaaag gtgtaaaaca tttgaaggat tttccaattc tgccaggaga aatattcaaa 1980

tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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ctgagtaaaa acaatgccat tgaaccaaga agcttctctc aaaacccacc agtcttgaaa 2700

cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

ggcagtgtcc ctcagttcaa gaaagttgtt ttccaggaat ttactgatgg ctcctttact 3000

cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

gcagaagttg aagataatat catggtaact ttcagaaatc aggcctctcg tccctattcc 3120

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cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

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atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 5040

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aactctctag acccaccgtt actgactcgc taccttcgaa ttcaccccca gagttgggtg 5160

caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcc 5220

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gcaaccggtc atcatcacca tcaccattga 5310

<210> 949
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 949
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly

```
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350
```

```
Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
```

```
Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
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```
Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
```

```
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1190                1195                1200

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                1210                1215
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```
Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                 1225                 1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1235                 1240                 1245

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1250                 1255                 1260

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                 1270                 1275

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1280                 1285                 1290

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                 1300                 1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425
```

```
Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650


Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665


Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680


Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755


Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
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<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40 45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
50 55 60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65 70 75 80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
85 90 95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
100 105 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
115 120 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
130 135 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145 150 155 160

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Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
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Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
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    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590
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Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815
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Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1190                1195                1200

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                1210                1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
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Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
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Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                1270                1275

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1280                1285                1290

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                1300                1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                 1735                 1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Thr Ser Glu Ser Ala
35 40 45

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
50 55 60

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
65 70 75 80

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
85 90 95

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
100 105 110

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
115 120 125

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
130 135 140

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
145 150 155 160

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
165 170 175

```
Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser Asn Thr
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Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
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610 615 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
645 650 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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

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Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
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Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
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Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                1210                1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                1225                1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
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Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
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Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
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Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                 1300                 1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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<210> 955
<211> 1769
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 955
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

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Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
```

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His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
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Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
```

```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
```

```
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065
```

```
Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
    1160                1165                1170

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1175                1180                1185

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1190                1195                1200

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1205                1210                1215

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
    1220                1225                1230

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1235                1240                1245

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1250                1255                1260

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1265                1270                1275
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Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
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Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1295                1300                1305

Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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```
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
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<210> 956
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 956

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cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg      600

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<210> 957
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 957
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
            20   25   30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
        35   40   45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    50   55   60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65   70   75   80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85   90   95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100   105   110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115   120   125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130   135   140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145   150   155   160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165   170   175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro

```
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430
```

```
Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
                565                 570                 575

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
            580                 585                 590

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
        595                 600                 605

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
    610                 615                 620

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
625                 630                 635                 640

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                645                 650                 655
```

```
Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            660                 665                 670

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
        675                 680                 685

Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880
```

```
Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
               885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
               965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
```

```
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290
```

```
Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500
```

```
Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710
```

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1715   1720   1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1730   1735   1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
    1745   1750   1755

Ser Pro Ala Thr Gly His His His His His His
    1760   1765

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<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca   180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca   240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc   300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca   360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg   420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg   480

agcacggggt cgcccgcctc gagcagtgat ctcggtgagc tgcctgtgga cgcaagattt   540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg   600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt   660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac   720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag   780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct   840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcggc gcgccaacca gtacggagcc gtccgagggg 1680

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ccaagtgaag gttcagcacc aggcacctca acagaaccct ctgagggctc ggcgcctggt 1800

acaagtgagt ccgccacccc agaatccggg cctgggacaa gcacagaacc ttcggaaggg 1860

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 2280

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 2340

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 2400

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<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 959
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
            20                  25                  30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
        35                  40                  45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    50                  55                  60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65                  70                  75                  80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85                  90                  95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
```

```
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
                565                 570                 575

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
            580                 585                 590

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
        595                 600                 605

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
    610                 615                 620

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
625                 630                 635                 640

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                645                 650                 655

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            660                 665                 670
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Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
        675                 680                 685

Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895
```

```
Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
```

```
Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
```

1310 1315 1320

Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu
1325 1330 1335

Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met
1340 1345 1350

Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His Val
1355 1360 1365

Phe Thr Val Arg Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn
1370 1375 1380

Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys
1385 1390 1395

Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His
1400 1405 1410

Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1415 1420 1425

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
1430 1435 1440

Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1445 1450 1455

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1460 1465 1470

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1475 1480 1485

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1490 1495 1500

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1505 1510 1515

```
Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725
```

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1730   1735   1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
    1760   1765

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      polynucleotide

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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc 180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt 300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

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cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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<211> 1769
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
        35                  40                  45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50                  55                  60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255
```

```
Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
                565                 570                 575

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
            580                 585                 590

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
        595                 600                 605

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
    610                 615                 620

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
625                 630                 635                 640

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                645                 650                 655

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            660                 665                 670

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
        675                 680                 685

Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp
```

```
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910
```

```
Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925


Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940


Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125
```

```
Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740
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Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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<211> 5310
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<213> Artificial Sequence

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      polynucleotide

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gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt   240

gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca   300

ggatcacctg gctcaagccc tagcgcgtca accggcacgg gtccgggtgc ctcccctggc   360

acgtccagca ccggatcacc cggatcgagc ccatccgcct caaccggaac cggacccggt   420

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag   780

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accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca   1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa   1140

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<211> 1769
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polypeptide

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20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser

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    50                  55                  60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270
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Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495
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Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720
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```
Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
```

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    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140
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Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

```
Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
```

```
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Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
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Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510
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Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro
545                 550                 555                 560

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                565                 570                 575

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            580                 585                 590

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        595                 600                 605

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    610                 615                 620

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
625                 630                 635                 640

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                645                 650                 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            660                 665                 670

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        675                 680                 685

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735
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```
Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960
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```
Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
               965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

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Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        115                 120                 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
```

```
Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
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Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
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Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro
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Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                565                 570                 575

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            580                 585                 590

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        595                 600                 605

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    610                 615                 620

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
625                 630                 635                 640

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                645                 650                 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            660                 665                 670

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        675                 680                 685

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750
```

```
Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975
```

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

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185
```

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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
```

```
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 4620

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<210> 969
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 969
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

```
Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Gly Ala Pro Gly Thr Pro
        755                 760                 765

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
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    770                 775                 780

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
785                 790                 795                 800

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
                805                 810                 815

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
            820                 825                 830

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        835                 840                 845

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
    850                 855                 860

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
865                 870                 875                 880

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                885                 890                 895

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990
```

```
Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155


Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1160                1165                1170


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185


Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200
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Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                 1210                 1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1220                 1225                 1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1235                 1240                 1245

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                 1255                 1260

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                 1270                 1275

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1280                 1285                 1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                 1435                 1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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1610 1615 1620

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1625 1630 1635

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1640 1645 1650

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1655 1660 1665

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1670 1675 1680

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1685 1690 1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1700 1705 1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1730 1735 1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
1760 1765

<210> 970
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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<210> 971
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn

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    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
```

```
Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
```

```
Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Gly Ala Pro Gly Thr Pro
        755                 760                 765

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
    770                 775                 780

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
785                 790                 795                 800
```

```
Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
                805                 810                 815

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
            820                 825                 830

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        835                 840                 845

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
    850                 855                 860

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
865                 870                 875                 880

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                885                 890                 895

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
```

```
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                1165                1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                1180                1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215
```

```
Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                 1225                 1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                 1240                 1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1250                 1255                 1260

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                 1270                 1275

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                 1285                 1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425
```

```
Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635
```

```
Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
```

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<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

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gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

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cctggtacgt cgagcacggg gtcgccaggg gcgtcccctg ggacgtcctc aacaggctcg 2400

cccggtgcgt cacccggcac gtcgtccacg ggttcacctg gtagctcccc ttccgcgtcc 2460

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<210> 973
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 973
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
```

```
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
```

```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Gly Ala Pro Gly Thr Pro
        755                 760                 765

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
    770                 775                 780

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
785                 790                 795                 800

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
                805                 810                 815
```

```
Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
            820                 825                 830

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        835                 840                 845

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
    850                 855                 860

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
865                 870                 875                 880

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                885                 890                 895

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1190                1195                1200

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                1210                1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                1225                1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
```

```
    1235                1240                1245

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1250                1255                1260

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                1270                1275

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1280                1285                1290

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                1300                1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440
```

```
Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650
```

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
    1655   1660   1665

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
    1670   1675   1680

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
    1685   1690   1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
    1700   1705   1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1715   1720   1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1730   1735   1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
    1745   1750   1755

Ser Pro Ala Thr Gly His His His His His His
    1760   1765

<210> 974
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

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agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

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ggatcacctg gggccgaaac ggccgaacaa aaactcatct cagaagagga tctgtcacct 5280

gcaaccggtc atcatcacca tcaccattga 5310

<210> 975
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 975
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
130 135 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145 150 155 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
165 170 175

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Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
```

```
Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
```

```
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830
```

```
Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Gly Ala Pro Thr Ser Glu Ser Ala Thr
                965                 970                 975

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
            980                 985                 990

Pro Gly Thr Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
        995                 1000                1005

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1010                1015                1020

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1040                1045                1050
```

```
Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro
    1055                1060                1065

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1070                1075                1080

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1085                1090                1095

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1100                1105                1110

Gly Ala  Ser Ser Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260
```

```
Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
```

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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665
```

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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
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<210> 976
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 976

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gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt      240

gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca      300

ggatcacctg gctcaagccc tagcgcgtca accggcacgg gtccgggtgc ctcccctggc      360

acgtccagca ccggatcacc cggatcgagc ccatccgcct caaccggaac cggacccggt      420

acaccagggt cgggaacagc ctcctcgtca ccaggctcct caacccccctc gggagccacg      480

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<210> 977
<211> 1769
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 977
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Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40 45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
50 55 60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65 70 75 80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
85 90 95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
100 105 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
115 120 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
130 135 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145 150 155 160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

```
Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
```

```
His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
```

```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
```

```
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Gly Ala Pro Thr Ser Glu Ser Ala Thr
                965                 970                 975

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
            980                 985                 990

Pro Gly Thr Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
        995                 1000                1005

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1010                1015                1020

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1040                1045                1050

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro
    1055                1060                1065
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Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1070                 1075                 1080

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1085                 1090                 1095

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1100                 1105                 1110

Gly Ala  Ser Ser Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275
```

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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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1685 1690 1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1700 1705 1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1730 1735 1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1745 1750 1755

Ser Pro Ala Thr Gly His His His His His His
1760 1765

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<220>
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
        35   40   45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    50   55   60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65   70   75   80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85   90   95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100   105   110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115   120   125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130   135   140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145   150   155   160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165   170   175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro

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Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430
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Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
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Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290
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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
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Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
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Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
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Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                1345                1350

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                1360                1365

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
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Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
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His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
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Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
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Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
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Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
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Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1535                1540                1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                1570                1575

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
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Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
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Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
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Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
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Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710
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Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu
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Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
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Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
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Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
        35                  40                  45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50                  55                  60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
```

```
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His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670
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Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895
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Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
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Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
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Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
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Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                 1165                 1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                 1180                 1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                 1195                 1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                 1210                 1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                 1225                 1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                 1240                 1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                 1255                 1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                 1270                 1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                 1285                 1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
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Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
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Pro Gly Leu Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu
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Leu Ser Met Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser
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Gly His Val Phe Thr Val Arg Lys Lys Glu Glu Tyr Lys Met Ala
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Pro Ser Lys Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu
1400 1405 1410

His Leu His Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn
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Lys Cys Gln Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp
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Phe Gln Ile Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys
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Leu Ala Arg Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr
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Lys Glu Pro Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met
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Ile Ile His Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser
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Ser Leu Tyr Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly
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Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
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Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
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Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
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His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
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Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
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Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
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Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
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Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
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Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
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Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
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Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
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Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
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aaagctggaa tttggcgggt ggaatgcctt attggcgagc atctacatgc tgggatgagc 4260

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agacttcatt attccggatc aatcaatgcc tggagcacca aggagccctt ttcttggatc 4440

aaggtggatc tgttggcacc aatgattatt cacggcatca agacccaggg tgcccgtcag 4500

aagttctcca gcctctacat ctctcagttt atcatcatgt atagtcttga tgggaagaag 4560

tggcagactt atcgaggaaa ttccactgga accttaatgg tcttctttgg caatgtggat 4620

tcatctggga taaaacacaa tatttttaac cctccaatta ttgctcgata catccgtttg 4680

cacccaactc attatagcat tcgcagcact cttcgcatgg agttgatggg ctgtgattta 4740

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gcttcatcct actttaccaa tatgtttgcc acctggtctc cttcaaaagc tcgacttcac 4860

ctccaaggga ggagtaatgc ctggagacct caggtgaata atccaaaaga gtggctgcaa 4920

gtggacttcc agaagacaat gaaagtcaca ggagtaacta ctcagggagt aaaatctctg 4980

cttaccagca tgtatgtgaa ggagttcctc atctccagca gtcaagatgg ccatcagtgg 5040

actctctttt ttcagaatgg caaagtaaag gtttttcagg gaaatcaaga ctccttcaca 5100

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agttgggtgc accagattgc cctgaggatg gaggttctgg gctgcgaggc acaggacctc 5220

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<210> 983
<211> 1772
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 983
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
20 25 30

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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        35                  40                  45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    50                  55                  60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65                  70                  75                  80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                85                  90                  95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            100                 105                 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        115                 120                 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255
```

```
Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
```

```
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
```

```
Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990


Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035


Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050


Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095


Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110


Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125
```

```
Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                1315                1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1325                1330                1335
```

```
Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                1345                1350

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                1360                1365

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                1375                1380

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
```

```
    1535                1540                1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                1570                1575

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1580                1585                1590

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                1600                1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1610                1615                1620

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1625                1630                1635

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1640                1645                1650

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                1660                1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                1675                1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                1720                1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1730                1735                1740
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Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
    1745   1750   1755

Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
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<211> 5319
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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tcggaaacgc caggcacaag tgagtctgca actcccgagt ccggacctgg ctccgagcct   180

gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc   240

ggaaccagta ccgaacctag cgagggctct gctccgggca gcccagccgg ctctcctaca   300

tccacggagg agggcacttc cgaatccgcc accccggagt cagggccagg atctgaaccc   360

gctacctcag gcagtgagac gccaggaacg agcgagtccg ctacaccgga gagtgggcca   420

gggagccctg ctggatctcc tacgtccact gaggaagggt caccagcggg ctcgcccacc   480

agcactgaag aaggtgcctc gagcagtgat ctcggtgagc tgcctgtgga cgcaagattt   540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg   600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt   660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac   720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag   780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct   840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac   900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca   960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag   1020

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa   1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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<210> 985
<211> 1772
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 985
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Thr Ser Glu
20 25 30

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40 45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro

```
    50                  55                  60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65                  70                  75                  80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                85                  90                  95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            100                 105                 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        115                 120                 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    130                 135                 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145                 150                 155                 160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270
```

```
Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495
```

```
Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
```

```
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140
```

```
Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                1315                1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1325                1330                1335

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                1345                1350
```

```
Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                1360                1365

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                1375                1380

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1535                1540                1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560
```

```
His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                1570                1575

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1580                1585                1590

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                1600                1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1610                1615                1620

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1625                1630                1635

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1640                1645                1650

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                1660                1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                1675                1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                1720                1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1730                1735                1740

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    1745                1750                1755

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
```

1760 1765 1770

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<211> 5319
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gggagcgagc cagccacatc tgggtcggaa acgccaggca caagtgagtc tgcaactccc 180

gagtccggac ctggctccga gcctgccact agcggctccg agactccggg aacttccgag 240

agcgctacac cagaaagcgg acccggaacc agtaccgaac ctagcgaggg ctctgctccg 300

ggcagcccag ccggctctcc tacatccacg gaggagggca cttccgaatc cgccaccccg 360

gagtcagggc caggatctga acccgctacc tcaggcagtg agacgccagg aacgagcgag 420

tccgctacac cggagagtgg gccagggagc cctgctggat ctcctacgtc cactgaggaa 480

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ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

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attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

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cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

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<211> 1772
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 987
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

```
Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
```

```
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510
```

```
Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
```

```
Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960
```

```
Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
               965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
```

1160 1165 1170

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala
1175 1180 1185

Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu
1190 1195 1200

Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro
1205 1210 1215

Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala
1220 1225 1230

Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser
1235 1240 1245

Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
1250 1255 1260

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg
1265 1270 1275

Gln Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp
1280 1285 1290

Glu Thr Lys Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys
1295 1300 1305

Arg Ala Pro Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu
1310 1315 1320

Asn Tyr Arg Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu
1325 1330 1335

Pro Gly Leu Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu
1340 1345 1350

Leu Ser Met Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser
1355 1360 1365

```
Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                1375                1380

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1535                1540                1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                1570                1575
```

```
Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1580                1585                1590

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                1600                1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1610                1615                1620

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1625                1630                1635

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1640                1645                1650

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                1660                1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                1675                1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                1720                1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1730                1735                1740

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    1745                1750                1755

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
    1760                1765                1770
```

<210> 988
<211> 5319

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 988
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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

agcacggggt cgcccgcctc gagcagtgat ctcggtgagc tgcctgtgga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

gaggaacccc aactacgaat gaaaaataat gaagaagcgg aagactatga tgatgatctt 1500

actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

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tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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gtggacttcc agaagacaat gaaagtcaca ggagtaacta ctcagggagt aaaatctctg 4980

cttaccagca tgtatgtgaa ggagttcctc atctccagca gtcaagatgg ccatcagtgg 5040

actctctttt ttcagaatgg caaagtaaag gtttttcagg gaaatcaaga ctccttcaca 5100

cctgtggtga actctctaga cccaccgtta ctgactcgct accttcgaat tcacccccag 5160

agttgggtgc accagattgc cctgaggatg gaggttctgg gctgcgaggc acaggacctc 5220

tacggcgccg gatcacctgg ggccgaaacg gccgaacaaa aactcatctc agaagaggat 5280

ctgtcacctg caaccggtca tcatcaccat caccattga 5319

<210> 989
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 989
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Thr Ser Glu
20 25 30

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40 45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
50 55 60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65 70 75 80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
85 90 95

```
Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            100                 105                 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        115                 120                 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    130                 135                 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145                 150                 155                 160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
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```
Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
```

```
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750
```

```
Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975
```

```
Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990


Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005


Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1010                1015                1020


Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1025                1030                1035


Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1040                1045                1050


Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1055                1060                1065


Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1070                1075                1080


Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1085                1090                1095


Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1100                1105                1110


Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1115                1120                1125


Ala Ser  Ser Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
```

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    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
```

<210> 990
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polynucleotide

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gggagcgagc cagccacatc tgggtcggaa acgccaggca caagtgagtc tgcaactccc 180

gagtccggac ctggctccga gcctgccact agcggctccg agactccggg aacttccgag 240

agcgctacac cagaaagcgg acccggaacc agtaccgaac ctagcgaggg ctctgctccg 300

ggcagcccag ccggctctcc tacatccacg gaggagggca cttccgaatc cgccaccccg 360

gagtcagggc caggatctga acccgctacc tcaggcagtg agacgccagg aacgagcgag 420

tccgctacac cggagagtgg gccagggagc cctgctggat ctcctacgtc cactgaggaa 480

gggtcaccag cgggctcgcc caccagcact gaagaaggtg cctcgagcga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

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<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 991
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

```
Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
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```
Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
```

```
Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
```

```
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990
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Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005


Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1010                1015                1020


Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1025                1030                1035


Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1040                1045                1050


Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1055                1060                1065


Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1070                1075                1080


Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1085                1090                1095


Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1100                1105                1110


Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1115                1120                1125


Ala Ser  Ser Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200
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```
Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410
```

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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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1610 1615 1620

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1625 1630 1635

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1640 1645 1650

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1655 1660 1665

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1670 1675 1680

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1685 1690 1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1700 1705 1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1730 1735 1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1745 1750 1755

Ser Pro Ala Thr Gly His His His His His His
1760 1765

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<211> 5310
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca 300

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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly

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Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350
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```
Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
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Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
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Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
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Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990

Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
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Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
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Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
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Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
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Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
1085 1090 1095

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
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Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
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Ala Ser Ser Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu
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Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
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Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val
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Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
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Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
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Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680


Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
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Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
130 135 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145 150 155 160

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Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
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Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
```

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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590
```

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Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815
```

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990

Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
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Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
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Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
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Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
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Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
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Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1085                1090                1095

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1100                1105                1110

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1115                1120                1125

Ala Ser  Ser Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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```

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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                 1735                 1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
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ctgttggcac caatgattat tcacggcatc aagacccagg gtgcccgtca gaagttctcc 4500

agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 4560

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 4620

ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 4680

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 4740

agcatgccat tgggaatgga gagtaaagca atatcagatg cacagattac tgcttcatcc 4800

tactttacca atatgtttgc cacctggtct ccttcaaaag ctcgacttca cctccaaggg 4860

aggagtaatg cctggagacc tcaggtgaat aatccaaaag agtggctgca agtggacttc 4920

cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4980

atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 5040

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caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcc 5220

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<210> 997
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 997
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Thr Ser Glu Ser Ala
35 40 45

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
50 55 60

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
65 70 75 80

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
85 90 95

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
100 105 110

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
115 120 125

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
130 135 140

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
145 150 155 160

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
165 170 175

```
Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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```
Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
```

610 615 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
645 650 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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

```
Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990

Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1010                1015                1020

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1025                1030                1035

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1040                1045                1050
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Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1055                1060                1065

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1070                1075                1080

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1085                1090                1095

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1100                1105                1110

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1115                1120                1125

Ala Ser  Ser Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260
```

```
Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
```

```
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
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<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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tctgggtcgg aaacgccagg cacaagtgag tctgcaactc ccgagtccgg acctggctcc 240

gagcctgcca ctagcggctc cgagactccg ggaacttccg agagcgctac accagaaagc 300

ggacccggaa ccagtaccga acctagcgag ggctctgctc cgggcagccc agccggctct 360

cctacatcca cggaggaggg cacttccgaa tccgccaccc cggagtcagg gccaggatct 420

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gggccaggga gccctgctgg atctcctacg tccactgagg aagggtcacc agcgggctcg 540

cccaccagca ctgaagaagg tgcctcgagc aacacctcag tcgtgtacaa aaagactctg 600

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ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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<210> 999
<211> 1769
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 999
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
130 135 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145 150 155 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

```
Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
```

```
His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
```

```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
```

```
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990

Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1010                1015                1020

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1025                1030                1035

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1040                1045                1050

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1055                1060                1065
```

```
Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1070                 1075                 1080

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1085                 1090                 1095

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1100                 1105                 1110

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1115                 1120                 1125

Ala Ser  Ser Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                 1135                 1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275
```

```
Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
```

1685 1690 1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1700 1705 1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1730 1735 1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1745 1750 1755

Ser Pro Ala Thr Gly His His His His His His
1760 1765

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<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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<211> 1772
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser

```
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430
```

```
Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
```

```
Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
```

```
Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
```

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    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290
```

```
Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                1315                1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1325                1330                1335

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                1345                1350

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                1360                1365

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                1375                1380

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500
```

```
Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1535                1540                1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                1570                1575

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1580                1585                1590

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                1600                1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1610                1615                1620

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1625                1630                1635

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1640                1645                1650

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                1660                1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                1675                1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710
```

Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu
    1715   1720   1725

Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
    1730   1735   1740

Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
    1745   1750   1755

Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
    1760   1765   1770

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<211> 5319
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc   420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct   480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga   540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg   720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg   780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac   840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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cctgtggtga actctctaga cccaccgtta ctgactcgct accttcgaat tcacccccag 5160

agttgggtgc accagattgc cctgaggatg gaggttctgg gctgcgaggc acaggacctc 5220

tacggcgccg gatcacctgg ggccgaaacg gccgaacaaa aactcatctc agaagaggat 5280

ctgtcacctg caaccggtca tcatcaccat caccattga 5319

<210> 1003
<211> 1772
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1003
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
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```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Gly
385                 390                 395                 400

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                405                 410                 415

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            420                 425                 430

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        435                 440                 445

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
```

```
    450                 455                 460

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
465                 470                 475                 480

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                485                 490                 495

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            500                 505                 510

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        515                 520                 525

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670
```

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Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895
```

```
Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110
```

```
Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                 1120                 1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                 1135                 1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                 1150                 1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                 1165                 1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                 1180                 1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                 1195                 1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                 1210                 1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                 1225                 1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                 1240                 1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                 1255                 1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                 1270                 1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                 1285                 1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                 1300                 1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
```

```
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Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1325                1330                1335

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                1345                1350

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                1360                1365

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                1375                1380

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515
```

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Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1535                1540                1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                1570                1575

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1580                1585                1590

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                1600                1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1610                1615                1620

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1625                1630                1635

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1640                1645                1650

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                1660                1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                1675                1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                1720                1725
```

Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
    1730   1735   1740

Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
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Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
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<211> 5319
<212> DNA
<213> Artificial Sequence

<220>
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      polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcggc 1200

gcgccaacca gtacggagcc gtccgagggg agcgcaccag gaagcccggc tgggagcccg 1260

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ccagaatcag ggccaggatc tgagcccgcg acttcgggct ccgagacgcc tgggacatcc 1500

accgagccct ccgaaggatc agccccaggc accagcacgg agccctctga gggaagcgca 1560

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

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<210> 1005
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
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Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480
```

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Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
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    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
```

```
Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Gly Ala Pro Thr Ser Glu Ser Ala Thr
                965                 970                 975


Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
            980                 985                 990


Pro Gly Thr Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
        995                 1000                1005


Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1010                1015                1020


Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1040                1045                1050


Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro
    1055                1060                1065


Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1070                1075                1080


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1085                1090                1095


Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1100                1105                1110


Gly Ala  Ser Ser Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125
```

```
Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740
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Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro

```
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
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Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495
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Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
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Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
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Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
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Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
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Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
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Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
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Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                1315                1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
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Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
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Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
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Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
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Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
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Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560
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His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
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Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
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Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
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Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
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Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
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Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
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Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                1720                1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
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Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
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Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510
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Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
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Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
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Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
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Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
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Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990

Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
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Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
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Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
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Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
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Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
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Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1070                1075                1080

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
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Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1100                1105                1110

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
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Ala Ser  Ser Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
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Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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tattccggat caatcaatgc ctggagcacc aaggagccct tttcttggat caaggtggat 4440

ctgttggcac caatgattat tcacggcatc aagacccagg gtgcccgtca gaagttctcc 4500

agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 4560

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 4620

ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 4680

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 4740

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tactttacca atatgtttgc cacctggtct ccttcaaaag ctcgacttca cctccaaggg 4860

aggagtaatg cctggagacc tcaggtgaat aatccaaaag agtggctgca agtggacttc 4920

cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4980

atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 5040

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<210> 1011
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
```

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    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750
```

```
Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975
```

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Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990


Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005


Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1010                1015                1020


Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1025                1030                1035


Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1040                1045                1050


Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1055                1060                1065


Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1070                1075                1080


Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1085                1090                1095


Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1100                1105                1110


Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1115                1120                1125


Ala Ser  Ser Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
```

```
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
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<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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<210> 1013
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

```
Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Gly
385                 390                 395                 400

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                405                 410                 415

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            420                 425                 430

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        435                 440                 445

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    450                 455                 460

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
465                 470                 475                 480

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                485                 490                 495

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            500                 505                 510

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        515                 520                 525

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
```

```
Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
```

```
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990
```

```
Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005


Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1010                1015                1020


Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1025                1030                1035


Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1040                1045                1050


Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1055                1060                1065


Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1070                1075                1080


Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1085                1090                1095


Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1100                1105                1110


Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1115                1120                1125


Ala Ser  Ser Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200
```

```
Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410
```

```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
```

1610 1615 1620

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1625 1630 1635

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1640 1645 1650

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1655 1660 1665

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1670 1675 1680

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1685 1690 1695

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1700 1705 1710

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1715 1720 1725

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1730 1735 1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1745 1750 1755

Ser Pro Ala Thr Gly His His His His His His
1760 1765

<210> 1014
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcggc 1200

gcgccaacca gtacggagcc gtccgagggg agcgcaccag gaagcccggc tgggagcccg 1260

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acagaaccct ctgagggctc ggcgcctggt acaagtgagt ccgccacccc agaatccggg 1380

cctgggacaa gcacagaacc ttcggaaggg agtgcccctg gaacatccga atcggcaacc 1440

ccagaatcag ggccaggatc tgagcccgcg acttcgggct ccgagacgcc tgggacatcc 1500

accgagccct ccgaaggatc agccccaggc accagcacgg agccctctga gggaagcgca 1560

cctggtacca gcgaaagcgc aactcccgaa tcaggtcccg gtacgagcga gtcggcgacc 1620

ccggagagcg ggccaggtgc ctcgagcctc gcccccgatg acagaagtta taaaagtcaa 1680

tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

ttaccaaaag gtgtaaaaca tttgaaggat tttccaattc tgccaggaga aatattcaaa 1980

tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

ctcctcatct gctacaaaga atctgtagat caaagaggaa accagataat gtcagacaag 2160

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gggtgccaca actcagactt tcggaacaga ggcatgaccg ccttactgaa ggtttctagt 2580

tgtgacaaga acactggtga ttattacgag gacagttatg aagatatttc agcatacttg 2640

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cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

ggcggcgcgc caacgtccga aagtgctacc cctgagtcag gccctggtag tgagcctgcc 3000

acaagcggaa gcgaaactcc ggggacctca gagtctgcca ctcccgaatc ggggccaggc 3060

tctgaaccgg ccacttcagg gagcgaaaca ccaggaacat cggagagcgc taccccggag 3120

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tctcccgctg gcagcccaac gtcgacagaa gaaggatcac cagcaggctc ccccacatca 3300

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gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 3660

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 3720

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 3780

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<210> 1015
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1015
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn

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    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
```

```
Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
```

```
Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
```

```
Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Gly Ala Pro Thr Ser Glu Ser Ala Thr
                965                 970                 975

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
            980                 985                 990

Pro Gly Thr Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
        995                 1000                1005

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
```

```
    1010                1015                1020

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1040                1045                1050

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro
    1055                1060                1065

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1070                1075                1080

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1085                1090                1095

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1100                1105                1110

Gly Ala  Ser Ser Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215
```

```
Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425
```

```
Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635
```

```
Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650


Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665


Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680


Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755


Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765


<210> 1016
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac      180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240
```

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg gcgcgccaac cagtacggag ccgtccgagg ggagcgcacc aggaagcccg 1260

gctgggagcc cgacttctac cgaagagggt acatctaccg aaccaagtga aggttcagca 1320

ccaggcacct caacagaacc ctctgagggc tcggcgcctg gtacaagtga gtccgccacc 1380

ccagaatccg ggcctgggac aagcacagaa ccttcggaag ggagtgcccc tggaacatcc 1440

gaatcggcaa ccccagaatc agggccagga tctgagcccg cgacttcggg ctccgagacg 1500

cctgggacat ccaccgagcc ctccgaagga tcagccccag gcaccagcac ggagccctct 1560

gagggaagcg cacctggtac cagcgaaagc gcaactcccg aatcaggtcc cggtacgagc 1620

gagtcggcga ccccggagag cgggccaggt gcctcgagcg acagaagtta taaaagtcaa 1680

tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

ctcctcatct gctacaaaga atctgtagat caaagaggaa accagataat gtcagacaag 2160

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gggtgccaca actcagactt tcggaacaga ggcatgaccg ccttactgaa ggtttctagt 2580

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cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

aggctctggg attatgggat gggcgcgcca acgtccgaaa gtgctacccc tgagtcaggc 2940

cctggtagtg agcctgccac aagcggaagc gaaactccgg ggacctcaga gtctgccact 3000

cccgaatcgg ggccaggctc tgaaccggcc acttcaggga gcgaaacacc aggaacatcg 3060

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gcaggctccc ccacatcaac agaggagggt acatcagaat ctgctactcc cgagagtgga 3300

cccggtacct ccactgagcc cagcgagggg agtgcaccag gtgcctcgag cagtagctcc 3360

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tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 3720

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 3780

cttctggtct gccacactaa cacactgaac cctgctcatg ggagacaagt gacagtacag 3840

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ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 4680

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tactttacca atatgtttgc cacctggtct ccttcaaaag ctcgacttca cctccaaggg 4860

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cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4980

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caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcc 5220

ggatcacctg gggccgaaac ggccgaacaa aaactcatct cagaagagga tctgtcacct 5280

gcaaccggtc atcatcacca tcaccattga 5310

<210> 1017
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1017
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
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    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Gly
385                 390                 395                 400

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                405                 410                 415

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            420                 425                 430

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        435                 440                 445

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    450                 455                 460

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
465                 470                 475                 480

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                485                 490                 495

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            500                 505                 510

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        515                 520                 525

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590
```

```
Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815
```

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
```

```
    1235                1240                1245

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1280                1285                1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440
```

```
Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                 1735                 1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                 1750                 1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                 1765
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<210> 1018
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcggc 1200

gcgccaacca gtacggagcc gtccgagggg agcgcaccag gaagcccggc tgggagcccg 1260

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cctgggacaa gcacagaacc ttcggaaggg agtgcccctg gaacatccga atcggcaacc 1440

ccagaatcag ggccaggatc tgagcccgcg acttcgggct ccgagacgcc tgggacatcc 1500

accgagccct ccgaaggatc agccccaggc accagcacgg agccctctga gggaagcgca 1560

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tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

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cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

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ggcagtgtcc ctcagttcaa gaaagttgtt ttccaggaat ttactgatgg ctcctttact 3000

cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

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<210> 1019
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1019
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
```

```
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830
```

```
Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050
```

```
Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1235                1240                1245

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1280                1285                1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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<212> PRT

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415
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Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
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    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
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Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                1210                1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                1225                1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
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Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                1270                1275
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Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
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Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                1300                1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

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

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser

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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
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Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Gly
385                 390                 395                 400

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                405                 410                 415

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            420                 425                 430
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    450                 455                 460

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
465                 470                 475                 480

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                485                 490                 495

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            500                 505                 510

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        515                 520                 525

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
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Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val
1100 1105 1110

Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr
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Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys
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Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Gly Ala
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Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
1160 1165 1170

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
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Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
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Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
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Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
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Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
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Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
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Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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ctgttggcac caatgattat tcacggcatc aagacccagg gtgcccgtca gaagttctcc 4500

agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 4560

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 4620

ataaaacaca tatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 4680

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 4740

agcatgccat tgggaatgga gagtaaagca atatcagatg cacagattac tgcttcatcc 4800

tactttacca atatgtttgc cacctggtct ccttcaaaag ctcgacttca cctccaaggg 4860

aggagtaatg cctggagacc tcaggtgaat aatccaaaag agtggctgca agtggacttc 4920

cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4980

atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 5040

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<210> 1025
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1025
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
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```
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670
```

```
Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895
```

```
Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110
```

```
Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                1165                1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                1180                1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                1225                1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                1240                1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1250                1255                1260

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                1270                1275

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                1285                1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
```

1310 1315 1320

Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu
1325 1330 1335

Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met
1340 1345 1350

Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His Val
1355 1360 1365

Phe Thr Val Arg Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn
1370 1375 1380

Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys
1385 1390 1395

Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His
1400 1405 1410

Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1415 1420 1425

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
1430 1435 1440

Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1445 1450 1455

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1460 1465 1470

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1475 1480 1485

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1490 1495 1500

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1505 1510 1515

```
Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725
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Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1730   1735   1740

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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<211> 5310
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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<210> 1027
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1027
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
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```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480
```

```
Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
```

```
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
```

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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125
```

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                1165                1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                1180                1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                1225                1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                1240                1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1250                1255                1260

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                1270                1275

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                1285                1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
```

```
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740
```

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
    1745   1750   1755

Ser Pro Ala Thr Gly His His His His His His
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<211> 5310
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc   420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct   480

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gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg   720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg   780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac   840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg   960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat   1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt   1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa   1140

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gcccccgatg gcgcgccaac cagtacggag ccgtccgagg ggagcgcacc aggaagcccg 1260

gctgggagcc cgacttctac cgaagagggt acatctaccg aaccaagtga aggttcagca 1320

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gaatcggcaa ccccagaatc agggccagga tctgagcccg cgacttcggg ctccgagacg 1500

cctgggacat ccaccgagcc ctccgaagga tcagccccag gcaccagcac ggagccctct 1560

gagggaagcg cacctggtac cagcgaaagc gcaactcccg aatcaggtcc cggtacgagc 1620

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tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

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<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro

```
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
```

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Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Gly
385                 390                 395                 400

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                405                 410                 415

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            420                 425                 430

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        435                 440                 445

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    450                 455                 460

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
465                 470                 475                 480

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                485                 490                 495
```

```
Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            500                 505                 510

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        515                 520                 525

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
```

```
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

```
Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1190                1195                1200

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                1210                1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                1225                1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1235                1240                1245

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1250                1255                1260

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                1270                1275

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1280                1285                1290

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                1300                1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
```

1760 1765

<210> 1030
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcggc 1200

gcgccaacca gtacggagcc gtccgagggg agcgcaccag gaagcccggc tgggagcccg 1260

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acagaaccct ctgagggctc ggcgcctggt acaagtgagt ccgccacccc agaatccggg 1380

cctgggacaa gcacagaacc ttcggaaggg agtgcccctg gaacatccga atcggcaacc 1440

ccagaatcag ggccaggatc tgagcccgcg acttcgggct ccgagacgcc tgggacatcc 1500

accgagccct ccgaaggatc agccccaggc accagcacgg agccctctga gggaagcgca 1560

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cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

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aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 4020

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 4080

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atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 4260

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caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcc 5220

ggatcacctg gggccgaaac ggccgaacaa aaactcatct cagaagagga tctgtcacct 5280

gcaaccggtc atcatcacca tcaccattga 5310

<210> 1031
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1031
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
```

```
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510
```

```
Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
```

```
Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960
```

```
Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
               965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
```

```
    1160                1165                1170

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1190                1195                1200

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                1210                1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                1225                1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1235                1240                1245

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1250                1255                1260

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                1270                1275

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1280                1285                1290

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                1300                1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365
```

```
Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                 1735                 1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                 1750                 1755

Ser Pro  Ala Thr Gly His His  His His His His His
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<210> 1032
<211> 5310

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<213> Artificial Sequence

<220>
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polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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<211> 1769
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
```

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    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750
```

```
Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975
```

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Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
    1160                1165                1170

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1175                1180                1185
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Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1190                1195                1200

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1205                1210                1215

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
    1220                1225                1230

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1235                1240                1245

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1250                1255                1260

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1265                1270                1275

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    1280                1285                1290

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1295                1300                1305

Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
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polynucleotide

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<211> 1919
<212> PRT
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
```

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Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu
545                 550                 555                 560
```

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Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
```

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    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

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

```
His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Gly Ala Pro  Gly Thr Pro
    1055                1060                1065


Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1070                1075                1080


Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1085                1090                1095


Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1100                1105                1110


Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro
    1115                1120                1125


Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1130                1135                1140


Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1145                1150                1155


Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1160                1165                1170


Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1175                1180                1185


Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1190                1195                1200
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Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                 1225                 1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                 1240                 1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                 1255                 1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                 1270                 1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                 1285                 1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                 1300                 1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                 1315                 1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                 1330                 1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                 1345                 1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                 1360                 1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                 1375                 1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                 1390                 1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                 1405                 1410
```

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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1880                1885                1890

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1895                1900                1905

Ser Pro  Ala Thr Gly His His  His His His His
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

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Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
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Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575
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Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
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Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800
```

```
Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
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Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
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Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425
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Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635
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Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
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Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
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Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
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Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
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Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845
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Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg
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Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu
    1865   1870   1875

Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
    1880   1885   1890

Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
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Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
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<212> PRT
<213> Artificial Sequence

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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
```

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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590
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```
Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815
```

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Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035
```

```
Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
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Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
```

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

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1310                1315                1320

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1325                1330                1335

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1340                1345                1350

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1385                1390                1395

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1400                1405                1410

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                1435                1440
```

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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650
```

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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860
```

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1865   1870   1875

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
    1880   1885   1890

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
165 170 175

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Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620
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Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
```

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        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050
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Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                1240                1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                1255                1260
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
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Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
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Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                 1330                 1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                 1345                 1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                 1360                 1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                 1375                 1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                 1390                 1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                 1405                 1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
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Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                 1435                 1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                 1450                 1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                 1465                 1470
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Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
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Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
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Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
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Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
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Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875
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Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
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Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
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Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
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cagactcccc tgggaatggc ttctggacac attagagatt ttcagattac agcttcagga 4800

caatatggac agtgggcccc aaagctggcc agacttcatt attccggatc aatcaatgcc 4860

tggagcacca aggagccctt ttcttggatc aaggtggatc tgttggcacc aatgattatt 4920

cacggcatca agacccaggg tgcccgtcag aagttctcca gcctctacat ctctcagttt 4980

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<211> 1919
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

```
Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
```

```
His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
```

```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
```

```
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065
```

```
Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275
```

```
Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1310                1315                1320

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1325                1330                1335

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1340                1345                1350

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1385                1390                1395

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1400                1405                1410

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                1420                1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                1435                1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485
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```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
```

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    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1880                1885                1890
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Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Ser Pro Ala Thr Gly His His His His His His
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ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 5580

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 5640

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 5700

aaactcatct cagaagagga tctgtcacct gcaaccggtc atcatcacca tcaccattga 5760

<210> 1045
<211> 1922
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1045
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
            20   25   30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
        35   40   45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    50   55   60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65   70   75   80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85   90   95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100   105   110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115   120   125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130   135   140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145   150   155   160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165   170   175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210   215   220

```
Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
```

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        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
```

```
Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
```

```
Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990


Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035


Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050


Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095
```

```
Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                 1105                 1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                 1120                 1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                 1135                 1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                 1150                 1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                 1165                 1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                 1180                 1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                 1195                 1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                 1210                 1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                 1225                 1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                 1240                 1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                 1255                 1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                 1270                 1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                 1285                 1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
```

```
    1295                1300                1305

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1310                1315                1320

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1325                1330                1335

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1340                1345                1350

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1355                1360                1365

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1370                1375                1380

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1385                1390                1395

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1400                1405                1410

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1415                1420                1425

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1430                1435                1440

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1445                1450                1455

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500
```

```
Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710
```

```
His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    1895                1900                1905

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
    1910                1915                1920
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<210> 1046
<211> 5769
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc 180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt 300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

acccccctcgg gagccacggg ttcgcccggt tcgtcaacgc cttccggagc aactggtagc 480

cccggagcat cgccaggaac ttcgagcacg gggtcgcccg cctcgagcga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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caatatggac agtgggcccc aaagctggcc agacttcatt attccggatc aatcaatgcc 4860

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cacggcatca agacccaggg tgcccgtcag aagttctcca gcctctacat ctctcagttt 4980

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accttaatgg tcttctttgg caatgtggat tcatctggga taaaacacaa tatttttaac 5100

cctccaatta ttgctcgata catccgtttg cacccaactc attatagcat tcgcagcact 5160

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ggagtaacta ctcagggagt aaaatctctg cttaccagca tgtatgtgaa ggagttcctc 5460

atctccagca gtcaagatgg ccatcagtgg actctctttt ttcagaatgg caaagtaaag 5520

gtttttcagg gaaatcaaga ctccttcaca cctgtggtga actctctaga cccaccgtta 5580

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gaggttctgg gctgcgaggc acaggacctc tacggcgccg gatcacctgg ggccgaaacg 5700

gccgaacaaa aactcatctc agaagaggat ctgtcacctg caaccggtca tcatcaccat 5760

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<210> 1047
<211> 1922
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1047
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            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
```

```
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670
```

```
Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895
```

```
Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
```

```
Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                 1135                 1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                 1150                 1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                 1165                 1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                 1180                 1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                 1195                 1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                 1210                 1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                 1225                 1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                 1240                 1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                 1255                 1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
```

```
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515
```

```
Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725
```

```
Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    1895                1900                1905

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
    1910                1915                1920
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<211> 5769

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<220>
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polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
```

```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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```
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685
```

```
Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
```

```
Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925


Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940


Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960


Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975


Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990


Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005


Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020


Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035


Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050


Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125
```

```
Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1310                1315                1320

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
```

1325 1330 1335

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
1340 1345 1350

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
1355 1360 1365

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
1370 1375 1380

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser
1385 1390 1395

Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
1400 1405 1410

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
1415 1420 1425

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
1430 1435 1440

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Ala Pro
1445 1450 1455

Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg
1460 1465 1470

Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu
1475 1480 1485

Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met
1490 1495 1500

Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His Val
1505 1510 1515

Phe Thr Val Arg Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn
1520 1525 1530

```
Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740
```

```
Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1880                1885                1890

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1895                1900                1905

Ser Pro  Ala Thr Gly His His  His His His His His
    1910                1915
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<211> 1922
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro

```
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
```

```
Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495
```

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Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
```

```
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140
```

```
Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1310                1315                1320

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1325                1330                1335

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1340                1345                1350
```

```
Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1355                1360                1365

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1370                1375                1380

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1385                1390                1395

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1400                1405                1410

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1415                1420                1425

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1430                1435                1440

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1445                1450                1455

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560
```

```
His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
```

1760 1765 1770

Arg Ser Asn Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp
1775 1780 1785

Leu Gln Val Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr
1790 1795 1800

Thr Gln Gly Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu
1805 1810 1815

Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe
1820 1825 1830

Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser
1835 1840 1845

Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg
1850 1855 1860

Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu
1865 1870 1875

Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
1880 1885 1890

Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
1895 1900 1905

Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
1910 1915 1920

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<213> Artificial Sequence

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val

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65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
```

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Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Gly Ala Pro Gly Thr Pro
        755                 760                 765

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
    770                 775                 780

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
785                 790                 795                 800

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
                805                 810                 815

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
            820                 825                 830

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        835                 840                 845

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
    850                 855                 860

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
865                 870                 875                 880

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                885                 890                 895

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
```

```
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155
```

```
Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                 1165                 1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                 1180                 1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                 1195                 1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                 1210                 1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                 1225                 1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                 1240                 1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                 1255                 1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                 1270                 1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                 1285                 1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                 1300                 1305

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1310                 1315                 1320

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1325                 1330                 1335

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1340                 1345                 1350

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1355                 1360                 1365
```

```
Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1370                1375                1380

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1385                1390                1395

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1400                1405                1410

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1415                1420                1425

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1430                1435                1440

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1445                1450                1455

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575
```

```
Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
```

1775 1780 1785

Leu Gln Val Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr
1790 1795 1800

Thr Gln Gly Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu
1805 1810 1815

Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe
1820 1825 1830

Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser
1835 1840 1845

Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg
1850 1855 1860

Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu
1865 1870 1875

Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
1880 1885 1890

Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
1895 1900 1905

Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
1910 1915 1920

<210> 1054
<211> 5769
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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gcgccaggta cacccggatc gggtacagcg tcatcgagcc ccggtgcgtc acctggtacg 3000

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tcaagcactg gctcccctgc ctcgagcagg gctcagagtg gcagtgtccc tcagttcaag 3420

aaagttgttt tccaggaatt tactgatggc tcctttactc agcccttata ccgtggagaa 3480

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agtgcacctg gtacaagcga gtccgccaca cccgagtctg gccctggctc tccagcgggc 4200

tcacccacga gcactgaaga gggctctccc gctggcagcc caacgtcgac agaagaagga 4260

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gtttttcagg gaaatcaaga ctccttcaca cctgtggtga actctctaga cccaccgtta 5580

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gaggttctgg gctgcgaggc acaggacctc tacggcgccg gatcacctgg ggccgaaacg 5700

gccgaacaaa aactcatctc agaagaggat ctgtcacctg caaccggtca tcatcaccat 5760

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<211> 2072
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser

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                85                  90                  95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300
```

```
Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525
```

```
Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750
```

```
Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
```

```
               965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Gly Ala Pro  Gly Thr Pro
    1055                1060                1065

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1070                1075                1080

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1085                1090                1095

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1100                1105                1110

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro
    1115                1120                1125

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1130                1135                1140

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1145                1150                1155

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1160                1165                1170
```

```
Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1175                1180                1185

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1190                1195                1200

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1280                1285                1290

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1295                1300                1305

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1310                1315                1320

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1325                1330                1335

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1340                1345                1350

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1355                1360                1365

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1370                1375                1380
```

```
Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1385                 1390                 1395

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1400                 1405                 1410

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1415                 1420                 1425

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1430                 1435                 1440

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1445                 1450                 1455

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1460                 1465                 1470

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1475                 1480                 1485

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1490                 1495                 1500

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1505                 1510                 1515

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1520                 1525                 1530

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1535                 1540                 1545

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1550                 1555                 1560

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1565                 1570                 1575

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1580                 1585                 1590
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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1595                 1600                 1605

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1610                 1615                 1620

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1625                 1630                 1635

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1640                 1645                 1650

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1655                 1660                 1665

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1670                 1675                 1680

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1685                 1690                 1695

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1700                 1705                 1710

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1715                 1720                 1725

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                 1735                 1740

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                 1750                 1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                 1765                 1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                 1780                 1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
```

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    1790                1795                1800

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1835                1840                1845

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1850                1855                1860

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1865                1870                1875

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1880                1885                1890

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1895                1900                1905

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1910                1915                1920

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995
```

Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg
    2000   2005   2010

Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu
    2015   2020   2025

Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
    2030   2035   2040

Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
    2045   2050   2055

Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
    2060   2065   2070

<210> 1056
<211> 6219
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc   180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg   240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt   300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca   360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca   420

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cccggagcat cgccaggaac ttcgagcacg gggtcgcccg cctcgagcga cgcaagattt   540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg   600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt   660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac   720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag   780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

gaggaacccc aactacgaat gaaaaataat gaagaagcgg aagactatga tgatgatctt 1500

actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

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ccttcggaag ggagtgcccc tggaacatcc gaatcggcaa ccccagaatc agggccagga 1920

tctgagcccg cgacttcggg ctccgagacg cctgggacat ccaccgagcc ctccgaagga 1980

tcagccccag gcaccagcac ggagccctct gagggaagcg cacctggtac cagcgaaagc 2040

gcaactcccg aatcaggtcc cggtacgagc gagtcggcga ccccggagag cgggccaggt 2100

gcctcgagcg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 2160

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 2280

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agttgggtgc accagattgc cctgaggatg gaggttctgg gctgcgaggc acaggacctc 6120

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<211> 2069
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
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                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540
```

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


Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575


Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605


Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620


Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640


Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670


Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685


Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700


Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720


Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735


Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750


Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765
```

```
Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

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

```
His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Gly Ala Pro  Gly Thr Pro
    1055                1060                1065


Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1070                1075                1080


Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1085                1090                1095


Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1100                1105                1110


Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro
    1115                1120                1125


Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1130                1135                1140


Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1145                1150                1155


Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1160                1165                1170


Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1175                1180                1185


Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
```

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    1190                1195                1200

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395
```

```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1445                1450                1455

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1460                1465                1470

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1475                1480                1485

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1490                1495                1500

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1505                1510                1515

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1520                1525                1530

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1535                1540                1545

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1550                1555                1560

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1565                1570                1575

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1580                1585                1590

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1595                1600                1605
```

```
Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1610                 1615                 1620

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1625                 1630                 1635

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1640                 1645                 1650

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1655                 1660                 1665

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1670                 1675                 1680

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1685                 1690                 1695

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1700                 1705                 1710

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1715                 1720                 1725

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1730                 1735                 1740

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1745                 1750                 1755

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1760                 1765                 1770

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1775                 1780                 1785

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1790                 1795                 1800

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1805                 1810                 1815
```

```
Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1820                1825                1830

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1835                1840                1845

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1850                1855                1860

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1865                1870                1875

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1880                1885                1890

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1895                1900                1905

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1910                1915                1920

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1925                1930                1935

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1940                1945                1950

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1955                1960                1965

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1970                1975                1980

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1985                1990                1995

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    2000                2005                2010

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
```

2015 2020 2025

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
2030 2035 2040

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
2045 2050 2055

Ser Pro Ala Thr Gly His His His His His His
2060 2065

<210> 1058
<211> 6210
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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<211> 2072
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

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Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350
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Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
```

565 570 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
580 585 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
595 600 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
610 615 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625 630 635 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
645 650 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
660 665 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
675 680 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
690 695 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705 710 715 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
725 730 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
740 745 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
755 760 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
770 775 780

```
Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005
```

```
Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215
```

```
Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                 1240                 1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                 1255                 1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                 1315                 1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                 1330                 1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                 1345                 1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                 1360                 1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                 1375                 1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                 1390                 1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                 1405                 1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
```

```
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1460                1465                1470

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1475                1480                1485

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1490                1495                1500

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1505                1510                1515

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1520                1525                1530

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1535                1540                1545

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1550                1555                1560

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1565                1570                1575

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1580                1585                1590

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1595                1600                1605

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1610                1615                1620
```

```
Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1625                1630                1635

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1640                1645                1650

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1655                1660                1665

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1670                1675                1680

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1685                1690                1695

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1700                1705                1710

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1715                1720                1725

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                1735                1740

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                1750                1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                1765                1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                1780                1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1790                1795                1800

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830
```

```
Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1835                1840                1845

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1850                1855                1860

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1865                1870                1875

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1880                1885                1890

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1895                1900                1905

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1910                1915                1920

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2000                2005                2010

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2015                2020                2025

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2030                2035                2040
```

Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu
    2045   2050   2055

Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
    2060   2065   2070

<210> 1060
<211> 6219
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc   180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg   240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt   300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca   360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca   420

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cccggagcat cgccaggaac ttcgagcacg gggtcgcccg cctcgagcga cgcaagattt   540

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tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt   660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac   720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag   780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct   840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac   900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca   960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag   1020

accttgcaca aatttatact acttttttgct gtatttgatg aagggaaaag ttggcactca   1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 2220

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 2280

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<210> 1061
<211> 2072
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

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Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365
```

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Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590
```

```
Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
```

```
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020
```

```
Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
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Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                1225                1230
```

```
Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                1240                1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                1255                1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440
```

```
Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1460                1465                1470

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1475                1480                1485

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1490                1495                1500

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1505                1510                1515

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1520                1525                1530

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1535                1540                1545

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1550                1555                1560

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1565                1570                1575

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1580                1585                1590

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1595                1600                1605

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1610                1615                1620

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1625                1630                1635

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
```

```
    1640                1645                1650

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1655                1660                1665

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1670                1675                1680

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1685                1690                1695

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1700                1705                1710

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1715                1720                1725

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                1735                1740

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                1750                1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                1765                1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                1780                1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1790                1795                1800

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1835                1840                1845
```

```
Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1850                1855                1860

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1865                1870                1875

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1880                1885                1890

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1895                1900                1905

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1910                1915                1920

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2000                2005                2010

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2015                2020                2025

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2030                2035                2040

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    2045                2050                2055
```

Glu Asp Leu Ser Pro Ala Thr Gly His His His His His His
2060 2065 2070

<210> 1062
<211> 6219
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 1062
gccaccagaa gatactacct gggtgcagtg gaactgtcat gggactatat gcaaagtgat 60

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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc 180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt 300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

acccccctcgg gagccacggg ttcgcccggt tcgtcaacgc cttccggagc aactggtagc 480

cccggagcat cgccaggaac ttcgagcacg gggtcgcccg cctcgagcga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

gaggaacccc aactacgaat gaaaaataat gaagaagcgg aagactatga tgatgatctt 1500

actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg acagaagtta taaaagtcaa 1680

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cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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gggtgccaca actcagactt tcggaacaga ggcatgaccg ccttactgaa ggtttctagt 2580

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ccacatgttc taagaaacag ggctcagggc gcgccaggta cacccggatc gggtacagcg 3420

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agttgggtgc accagattgc cctgaggatg gaggttctgg gctgcgaggc acaggacctc 6120

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<210> 1063
<211> 2072
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1063
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu

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                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400


Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415


Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445


Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495


Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540


Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560


Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575


Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590


Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605
```

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Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830
```

```
Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
```

```
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                1225                1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                1240                1245
```

```
Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                 1255                 1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                 1315                 1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                 1330                 1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                 1345                 1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                 1360                 1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                 1375                 1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                 1390                 1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                 1405                 1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                 1420                 1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                 1435                 1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                 1450                 1455
```

```
Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1460                 1465                 1470

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1475                 1480                 1485

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1490                 1495                 1500

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1505                 1510                 1515

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1520                 1525                 1530

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1535                 1540                 1545

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1550                 1555                 1560

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1565                 1570                 1575

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1580                 1585                 1590

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1595                 1600                 1605

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1610                 1615                 1620

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1625                 1630                 1635

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1640                 1645                 1650

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1655                 1660                 1665
```

```
Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1670                1675                1680

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1685                1690                1695

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1700                1705                1710

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1715                1720                1725

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                1735                1740

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                1750                1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                1765                1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                1780                1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1790                1795                1800

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1835                1840                1845

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1850                1855                1860

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
```

```
    1865                1870                1875

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1880                1885                1890

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1895                1900                1905

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1910                1915                1920

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2000                2005                2010

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2015                2020                2025

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2030                2035                2040

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    2045                2050                2055

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
    2060                2065                2070
```

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<211> 6219
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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<211> 2222
<212> PRT
<213> Artificial Sequence

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

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Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
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                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620
```

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Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845
```

```
Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Gly Ala Pro  Gly Thr Pro
    1055                1060                1065
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Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
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Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1085                1090                1095

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1100                1105                1110

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro
    1115                1120                1125

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1130                1135                1140

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1145                1150                1155

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1160                1165                1170

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1175                1180                1185

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1190                1195                1200

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1295                1300                1305

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1310                1315                1320

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1325                1330                1335

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1340                1345                1350

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1355                1360                1365

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1370                1375                1380

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1385                1390                1395

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1400                1405                1410

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1415                1420                1425

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1430                1435                1440

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1445                1450                1455

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1460                1465                1470
```

```
Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1475                 1480                 1485

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1490                 1495                 1500

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1505                 1510                 1515

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1520                 1525                 1530

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1535                 1540                 1545

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1550                 1555                 1560

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1565                 1570                 1575

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1580                 1585                 1590

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1595                 1600                 1605

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1610                 1615                 1620

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1625                 1630                 1635

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1640                 1645                 1650

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1655                 1660                 1665

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1670                 1675                 1680
```

```
Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1685                1690                1695

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1700                1705                1710

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1715                1720                1725

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1730                1735                1740

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1745                1750                1755

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1760                1765                1770

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1775                1780                1785

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1790                1795                1800

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1805                1810                1815

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1820                1825                1830

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1835                1840                1845

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1850                1855                1860

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1865                1870                1875

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1880                1885                1890
```

```
Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1895                 1900                 1905

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1910                 1915                 1920

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1925                 1930                 1935

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1940                 1945                 1950

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1955                 1960                 1965

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1970                 1975                 1980

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1985                 1990                 1995

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    2000                 2005                 2010

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    2015                 2020                 2025

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    2030                 2035                 2040

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    2045                 2050                 2055

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    2060                 2065                 2070

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    2075                 2080                 2085

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
```

```
    2090                2095                2100

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    2105                2110                2115

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    2120                2125                2130

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    2135                2140                2145

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2150                2155                2160

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2165                2170                2175

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2180                2185                2190

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    2195                2200                2205

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
    2210                2215                2220
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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

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<211> 2053
<212> PRT
<213> Artificial Sequence

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polypeptide

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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
130 135 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145 150 155 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
195 200 205

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Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
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            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
```

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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080
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Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                 1105                 1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
```

```
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905
```

```
Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920


Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935


Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950


Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965


Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                2035                2040


Pro Ala  Thr Gly His His His  His His His
    2045                2050


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gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Thr Ser Glu
20 25 30

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Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        35                  40                  45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    50                  55                  60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65                  70                  75                  80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                85                  90                  95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
            100                 105                 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        115                 120                 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    130                 135                 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145                 150                 155                 160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
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                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685
```

```
Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910
```

```
Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
```

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Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
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Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320
```

```
Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530
```

```
Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740
```

```
Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
```

```
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                2035                2040

Pro Ala  Thr Gly His His His  His His His
    2045                2050
```

<210> 1070
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gggagcgagc cagccacatc tgggtcggaa acgccaggca caagtgagtc tgcaactccc 180

gagtccggac ctggctccga gcctgccact agcggctccg agactccggg aacttccgag 240

agcgctacac cagaaagcgg acccggaacc agtaccgaac ctagcgaggg ctctgctccg 300

ggcagcccag ccggctctcc tacatccacg gaggagggca cttccgaatc cgccaccccg 360

gagtcagggc caggatctga acccgctacc tcaggcagtg agacgccagg aacgagcgag 420

tccgctacac cggagagtgg gccagggagc cctgctggat ctcctacgtc cactgaggaa 480

gggtcaccag cgggctcgcc caccagcact gaagaaggtg cctcgagcga cgcaagattt 540

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

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ggcagtgaga cacccggcac ttcagagagt gccacccccg agagtggccc aggcactagt 6060

accgagccct ctgaaggcag tgcgccagcc tcgagcgaac aaaaactcat ctcagaagag 6120

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<211> 2053
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1071
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1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser

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65                  70                  75                  80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85                  90                  95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285
```

```
Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510
```

```
Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
```

```
Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
```

```
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155
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```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365
```

```
Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575
```

```
Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                 1735                 1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                 1750                 1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                 1765                 1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
```

```
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980
```

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2015 2020 2025

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

<210> 1072
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc 180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

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accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

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ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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gatctgtcac ctgcaaccgg tcatcatcac catcaccatt ga 6162

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<211> 2053
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1073
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

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Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
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Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
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```
Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
```

```
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990
```

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Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410
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```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815
```

```
Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025
```

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

<210> 1074
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca 300

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ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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<211> 2053
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polypeptide

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1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Thr Ser Glu Ser Ala
35 40 45

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
50 55 60

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
65 70 75 80

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
85 90 95

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
100 105 110

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
115 120 125

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
130 135 140

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
145 150 155 160

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Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
                165                 170                 175

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380
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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
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595 600 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
610 615 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
645 650 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245
```

```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                 1735                 1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                 1750                 1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                 1765                 1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                 1780                 1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                 1795                 1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                 1810                 1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                 1825                 1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                 1840                 1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                 1855                 1860
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                2035                2040

Pro Ala  Thr Gly His His His  His His His
    2045                2050
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<211> 6162

<212> DNA
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<220>
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polynucleotide

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tctgggtcgg aaacgccagg cacaagtgag tctgcaactc ccgagtccgg acctggctcc 240

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<211> 2053
<212> PRT
<213> Artificial Sequence

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polypeptide

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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
115 120 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
130 135 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145 150 155 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
195 200 205

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Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
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            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
```

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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
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Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                 1105                 1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905
```

```
Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920


Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935


Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950


Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965


Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                2035                2040


Pro Ala  Thr Gly His His His  His His His
    2045                2050


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<211> 6162
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      polynucleotide

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ccaacatcag agagcgccac ccctgaaagt ggtcccggga gcgagccagc cacatctggg      120
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ggaaccagta ccgaacctag cgagggctct gctccgggca gcccagccgg ctctcctaca 300

tccacggagg agggcacttc cgaatccgcc accccggagt cagggccagg atctgaaccc 360

gctacctcag gcagtgagac gccaggaacg agcgagtccg ctacaccgga gagtgggcca 420

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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<211> 2053
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
        35                  40                  45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50                  55                  60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
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                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685
```

```
Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910
```

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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
```

```
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530
```

```
Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740
```

```
Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
```

1940 1945 1950

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
1955 1960 1965

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
1970 1975 1980

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2015 2020 2025

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

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20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser

```
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285
```

```
Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510
```

```
Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
```

```
Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
```

```
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155
```

```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575
```

```
Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                 1735                 1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                 1750                 1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                 1765                 1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
```

```
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980
```

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2015 2020 2025

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

<210> 1082
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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<210> 1083
<211> 2053
<212> PRT
<213> Artificial Sequence

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polypeptide

<400> 1083
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
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Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
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```
Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
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    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990
```

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Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410
```

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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815
```

```
Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025
```

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

<210> 1084
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

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ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

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ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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gatctgtcac ctgcaaccgg tcatcatcac catcaccatt ga 6162

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<211> 2053
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
20 25 30

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
115 120 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
130 135 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145 150 155 160

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Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380
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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
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595 600 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
610 615 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
645 650 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245
```

```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

```
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                 1735                 1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                 1750                 1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                 1765                 1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                 1780                 1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                 1795                 1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                 1810                 1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                 1825                 1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                 1840                 1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                 1855                 1860
```

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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                2035                2040

Pro Ala  Thr Gly His His His  His His His
    2045                2050
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<211> 6162

<212> DNA
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polynucleotide

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gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc 240

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gctacctcag gcagtgagac gccaggaacg agcgagtccg ctacaccgga gagtgggcca 420

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<211> 2053
<212> PRT
<213> Artificial Sequence

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Thr Ser Glu
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Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
35 40 45

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
50 55 60

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
65 70 75 80

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
85 90 95

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
100 105 110

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
115 120 125

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
130 135 140

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
145 150 155 160

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
195 200 205

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Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
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            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
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Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                 1105                 1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905
```

```
Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920


Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935


Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950


Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965


Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                2035                2040


Pro Ala  Thr Gly His His His  His His His
    2045                2050


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<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
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      polynucleotide

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agcgctacac cagaaagcgg acccggaacc agtaccgaac ctagcgaggg ctctgctccg 300

ggcagcccag ccggctctcc tacatccacg gaggagggca cttccgaatc cgccaccccg 360

gagtcagggc caggatctga acccgctacc tcaggcagtg agacgccagg aacgagcgag 420

tccgctacac cggagagtgg gccagggagc cctgctggat ctcctacgtc cactgaggaa 480

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ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 3420

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ggcagtgaga cacccggcac ttcagagagt gccacccccg agagtggccc aggcactagt 6060

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<211> 2053
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Thr Ser Glu Ser Ala
        35                  40                  45

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
    50                  55                  60

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
65                  70                  75                  80

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
                85                  90                  95

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
            100                 105                 110

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
        115                 120                 125

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
    130                 135                 140

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
145                 150                 155                 160

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
                165                 170                 175

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
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                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
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```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685
```

```
Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910
```

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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
```

```
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530
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```
Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740
```

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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
```

1940 1945 1950

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
1955 1960 1965

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
1970 1975 1980

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2015 2020 2025

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

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<211> 6162
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<211> 2053
<212> PRT
<213> Artificial Sequence

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val

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65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
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Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510
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```
Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
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Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155
```

```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365
```

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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                 1735                 1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                 1750                 1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                 1765                 1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
```

```
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980
```

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2015 2020 2025

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

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<211> 6162
<212> DNA
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<220>
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<211> 2053
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

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Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Gly
385                 390                 395                 400

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                405                 410                 415

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            420                 425                 430

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        435                 440                 445

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    450                 455                 460

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
465                 470                 475                 480

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                485                 490                 495

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            500                 505                 510

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        515                 520                 525

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
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```
Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
```

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    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990
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Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200
```

```
Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410
```

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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                 1435                 1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
```

```
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815
```

```
Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025
```

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

<210> 1094
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcggc 1200

gcgccaacca gtacggagcc gtccgagggg agcgcaccag gaagcccggc tgggagcccg 1260

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acagaaccct ctgagggctc ggcgcctggt acaagtgagt ccgccacccc agaatccggg 1380

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ccagaatcag ggccaggatc tgagcccgcg acttcgggct ccgagacgcc tgggacatcc 1500

accgagccct ccgaaggatc agccccaggc accagcacgg agccctctga gggaagcgca 1560

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catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 3540

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gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 3660

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 3720

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<210> 1095
<211> 2053
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1095
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1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
```

595 600 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
610 615 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
645 650 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245
```

```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

```
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650
```

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                 1735                 1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                 1750                 1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                 1765                 1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                 1780                 1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                 1795                 1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                 1810                 1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                 1825                 1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                 1840                 1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                 1855                 1860
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                2035                2040

Pro Ala  Thr Gly His His His  His His His
    2045                2050
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<211> 6162

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<211> 2053
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Gly
385                 390                 395                 400

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                405                 410                 415

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
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            420                 425                 430

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        435                 440                 445

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    450                 455                 460

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
465                 470                 475                 480

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                485                 490                 495

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            500                 505                 510

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        515                 520                 525

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    530                 535                 540

Pro Gly Ala Ser Ser Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
```

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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                 1090                 1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                 1105                 1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905
```

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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920


Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935


Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950


Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965


Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                2035                2040


Pro Ala  Thr Gly His His His  His His His
    2045                2050


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<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
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      polynucleotide

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

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cctgggacaa gcacagaacc ttcggaaggg agtgcccctg gaacatccga atcggcaacc 1440

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<211> 2053
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
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                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460
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```
Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685
```

```
Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
```

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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990


Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005


Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1010                1015                1020


Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1025                1030                1035


Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1040                1045                1050


Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1055                1060                1065


Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1070                1075                1080


Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1085                1090                1095


Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1100                1105                1110


Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
```

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    1115                1120                1125

Ala Ser  Ser Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320
```

```
Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530
```

```
Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740
```

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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
```

1940 1945 1950

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
1955 1960 1965

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
1970 1975 1980

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2015 2020 2025

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val

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65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
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Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
```

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945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155
```

```
Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                 1165                 1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                 1180                 1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                 1195                 1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                 1210                 1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                 1225                 1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                 1240                 1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                 1255                 1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                 1270                 1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                 1285                 1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                 1300                 1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                 1315                 1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1325                 1330                 1335

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                 1345                 1350

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                 1360                 1365
```

```
Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                1375                1380

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1535                1540                1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                1570                1575
```

```
Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1580                 1585                 1590

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                 1600                 1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1610                 1615                 1620

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1625                 1630                 1635

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1640                 1645                 1650

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                 1660                 1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                 1675                 1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                 1690                 1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                 1705                 1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                 1720                 1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1730                 1735                 1740

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1745                 1750                 1755

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1760                 1765                 1770

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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1775 1780 1785

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
1790 1795 1800

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
1805 1810 1815

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
1820 1825 1830

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
1835 1840 1845

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
1850 1855 1860

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
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Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
1880 1885 1890

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
1895 1900 1905

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
1910 1915 1920

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
1925 1930 1935

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
1940 1945 1950

Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
1955 1960 1965

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1970 1975 1980

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
    1985   1990   1995

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
    2000   2005   2010

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
    2015   2020   2025

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
    2030   2035   2040

Asp Leu Ser Pro Ala Thr Gly His His His His His His
    2045   2050   2055

<210> 1102
<211> 6171
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<213> Artificial Sequence

<220>
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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

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caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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<211> 2053
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

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Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
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Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
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    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Gly Ala Pro Thr Ser Glu Ser Ala Thr
                965                 970                 975

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
            980                 985                 990
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Pro Gly Thr Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
        995                 1000                1005


Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1010                1015                1020


Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1040                1045                1050


Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro
    1055                1060                1065


Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1070                1075                1080


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1085                1090                1095


Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1100                1105                1110


Gly Ala  Ser Ser Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410
```

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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815
```

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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025
```

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

<210> 1104
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

gtgcagcttg aggatccaga gttccaagcc tccaacatca tgcacagcat caatggctat 1860

gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

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aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

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ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacggcgc gccaagtccc gctggaagcc caactagcac cgaagagggg 2280

acctcagagt ccgccacccc cgagtccggc cctggctctg agcctgccac tagcggctcc 2340

gagactcctg gcacatccga aagcgctaca cccgagagtg gacccggcac ctctaccgag 2400

cccagtgagg gctccgcccc tggaacaagc accgagccca gcgaaggcag cgccccaggg 2460

acctccacag agcccagtga aggcagtgct cctggcacca gcaccgaacc aagcgagggc 2520

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cccagcgaag gcagcgcccc tgggagcccc gctggctctc ccaccagcac tgaggagggc 2640

acatctaccg aaccaagtga aggctctgca ccaggtgcct cgagcccacc agtcttgaaa 2700

cgccatcaag ctgaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

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gcaggctccc ccacatcaac agaggagggt acatcagaat ctgctactcc cgagagtgga 3300

cccggtacct ccactgagcc cagcgagggg agtgcaccag gtgcctcgag cagtagctcc 3360

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 3420

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gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 3660

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 3720

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 3780

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gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3900

atggaaagaa actgcagggc tccctgcaat atccagatgg aagatcccac ttttaaagag 3960

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gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 4080

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atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 4260

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ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 4680

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ccaggaacat ctacagagcc ctctgaaggc tccgctccag ggtccccagc cggcagtccc 5460

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cccggaacaa gcactgaacc cagtgagggt tcagcacccg gctctgagcc ggccacaagt 6000

ggcagtgaga cacccggcac ttcagagagt gccacccccg agagtggccc aggcactagt 6060

accgagccct ctgaaggcag tgcgccagcc tcgagcgaac aaaaactcat ctcagaagag 6120

gatctgtcac ctgcaaccgg tcatcatcac catcaccatt ga 6162

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<211> 2056
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
```

595 600 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
610 615 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625 630 635 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
645 650 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
660 665 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
675 680 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
690 695 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705 710 715 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
725 730 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
740 745 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
755 760 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
770 775 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785 790 795 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
805 810 815

```
Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035
```

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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245
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Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                 1255                 1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                 1270                 1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                 1285                 1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                 1300                 1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                 1315                 1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1325                 1330                 1335

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                 1345                 1350

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                 1360                 1365

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                 1375                 1380

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                 1390                 1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                 1405                 1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                 1420                 1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                 1435                 1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
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1445 1450 1455

Leu Ala Arg Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr
1460 1465 1470

Lys Glu Pro Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met
1475 1480 1485

Ile Ile His Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser
1490 1495 1500

Ser Leu Tyr Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly
1505 1510 1515

Lys Lys Trp Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met
1520 1525 1530

Val Phe Phe Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile
1535 1540 1545

Phe Asn Pro Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr
1550 1555 1560

His Tyr Ser Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys
1565 1570 1575

Asp Leu Asn Ser Cys Ser Met Pro Leu Gly Met Glu Ser Lys Ala
1580 1585 1590

Ile Ser Asp Ala Gln Ile Thr Ala Ser Ser Tyr Phe Thr Asn Met
1595 1600 1605

Phe Ala Thr Trp Ser Pro Ser Lys Ala Arg Leu His Leu Gln Gly
1610 1615 1620

Arg Ser Asn Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp
1625 1630 1635

Leu Gln Val Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr
1640 1645 1650

```
Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                1660                1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                1675                1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                1690                1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                1705                1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                1720                1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1730                1735                1740

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1745                1750                1755

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1760                1765                1770

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1775                1780                1785

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1790                1795                1800

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1805                1810                1815

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1820                1825                1830

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1835                1840                1845

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1850                1855                1860
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    1865                1870                1875

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    1880                1885                1890

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1895                1900                1905

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1910                1915                1920

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1925                1930                1935

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    1940                1945                1950

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1955                1960                1965

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1970                1975                1980

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1985                1990                1995

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2000                2005                2010

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2015                2020                2025

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
    2030                2035                2040

Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
    2045                2050                2055
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<210> 1106
<211> 6171

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
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            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
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Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860
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Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Gly Ala Pro Thr Ser Glu Ser Ala Thr
                965                 970                 975


Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
            980                 985                 990


Pro Gly Thr Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
        995                 1000                1005


Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1010                1015                1020


Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1040                1045                1050


Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro
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Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1100                1105                1110

Gly Ala  Ser Ser Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950


Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965


Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
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                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

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

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685
```

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Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu
            980                 985                 990


Ser Gly Pro Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
        995                 1000                1005


Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1010                1015                1020


Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1025                1030                1035


Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1040                1045                1050


Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1055                1060                1065


Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1070                1075                1080


Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1085                1090                1095


Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1100                1105                1110


Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
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    1115                1120                1125

Ala Ser  Ser Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
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Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
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1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Thr Gly His His His His His His
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val

```
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
```

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Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
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Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
```

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945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155
```

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Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                1165                1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                1180                1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                1225                1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                1240                1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1250                1255                1260

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                1270                1275

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                1285                1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365
```

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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575
```

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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Thr Gly His His His His His His
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<212> PRT
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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

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Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
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Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
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    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990
```

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Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155


Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1160                1165                1170


Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1175                1180                1185


Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1190                1195                1200
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Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1205                 1210                 1215

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1220                 1225                 1230

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1235                 1240                 1245

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1250                 1255                 1260

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1265                 1270                 1275

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1280                 1285                 1290

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1295                 1300                 1305

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410
```

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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                 1435                 1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                 1480                 1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                 1570                 1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                 1585                 1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
```

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    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025
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2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

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<212> PRT
<213> Artificial Sequence

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
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595 600 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
610 615 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625 630 635 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
645 650 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
660 665 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
675 680 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
690 695 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705 710 715 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
725 730 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
740 745 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
755 760 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
770 775 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785 790 795 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
805 810 815

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Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1235                1240                1245
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                 1270                 1275

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1280                 1285                 1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                 1435                 1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                 1735                 1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                 1765                 1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                 1810                 1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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polypeptide

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
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            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
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```
Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860
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Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1235                1240                1245

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
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    1280                1285                1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935


Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950


Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965


Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
```

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                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

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

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685
```

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Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys
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Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Gly Ala
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Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
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Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
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Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
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Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
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Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser
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Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
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Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
1265 1270 1275

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
1280 1285 1290

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Ala Pro
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Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg
1310 1315 1320

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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
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1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val

```
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
```

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Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

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Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
```

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945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155
```

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Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
    1160                1165                1170

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1175                1180                1185

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1190                1195                1200

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1205                1210                1215

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
    1220                1225                1230

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1235                1240                1245

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1250                1255                1260

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1265                1270                1275

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    1280                1285                1290

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1295                1300                1305

Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365
```

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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575
```

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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                 1735                 1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                 1750                 1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                 1765                 1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980
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1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2015 2020 2025

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

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

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Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
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Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
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Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

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

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
    850                 855                 860

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
865                 870                 875                 880

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
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Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser
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Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
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Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
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Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
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Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
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<211> 1619
<212> PRT
<213> Artificial Sequence

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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

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Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
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        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
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Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800
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Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gly Ala Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1010                1015                1020
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Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
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Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
    1040                1045                1050

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    1055                1060                1065

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1070                1075                1080

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1085                1090                1095

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro
    1100                1105                1110

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro
    1115                1120                1125

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1130                1135                1140

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1145                1150                1155

Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                 1525                 1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                 1555                 1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                 1570                 1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                 1585                 1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His His
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<211> 4860
<212> DNA

<213> Artificial Sequence

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polynucleotide

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<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
```

```
Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400


Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415


Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430


Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445


Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460


Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480


Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495


His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510


Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525


Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540


Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560


Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575


Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590


Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
```

```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
```

```
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Ser  Pro Ala Gly
    1010                1015                1020

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1025                1030                1035
```

```
Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1040                1045                1050

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1055                1060                1065

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1070                1075                1080

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1085                1090                1095

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1100                1105                1110

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1115                1120                1125

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1130                1135                1140

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1145                1150                1155

Gly Ser  Ala Pro Gly Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245
```

```
Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455
```

```
Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470


Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485


Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500


Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515


Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530


Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                1600                1605


Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
```

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<211> 4860
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

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agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

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ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

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gtcttctttg gcaatgtgga ttcatctggg ataaaacaca atatttttaa ccctccaatt 4200

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1129
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

```
His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
```

```
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845
```

```
Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
        995                 1000                1005

Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1010                1015                1020

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1025                1030                1035

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1040                1045                1050

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1055                1060                1065
```

```
Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1070                1075                1080

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1085                1090                1095

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1100                1105                1110

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1115                1120                1125

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1130                1135                1140

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
```

```
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470
```

```
Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                1585                1590

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
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Ser Pro  Ala Thr Gly His His  His His His His
    1610                1615
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<210> 1130
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact actttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 2580

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gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 2760

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 2820

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 2880

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ataatggata cactacctgg cttagtaatg gctcaggatc aaaggattcg atggtatctg 3600

ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

gtacgaaaaa aagaggagta taaaatggca ctgtacaatc tctatccagg tgtttttgag 3720

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agtcaagatg gccatcagtg gactctcttt tttcagaatg gcaaagtaaa ggtttttcag 4620

ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

taccttcgaa ttcaccccca gagttgggtg caccagattg ccctgaggat ggaggttctg 4740

ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 1619
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430
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Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        435                 440                 445

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
            500                 505                 510

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        515                 520                 525

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
```

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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
```

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865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290
```

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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                 1300                 1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                 1315                 1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                 1330                 1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                 1345                 1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                 1360                 1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                 1375                 1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                 1390                 1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                 1405                 1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                 1420                 1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                 1435                 1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                 1450                 1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                 1465                 1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500
```

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1505 1510 1515

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1520 1525 1530

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1535 1540 1545

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1550 1555 1560

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1565 1570 1575

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro
1580 1585 1590

Gly Ala Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1595 1600 1605

Ser Pro Ala Thr Gly His His His His His His
1610 1615

<210> 1132
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

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gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
```

```
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Gln
                885                 890                 895
```

```
Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala
            900                 905                 910

Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu
        915                 920                 925

Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val
    930                 935                 940

Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly
945                 950                 955                 960

Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu
                965                 970                 975

Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
            980                 985                 990

Tyr Ser Phe Tyr Ser Ser Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln
        995                 1000                1005

Gly Ala  Glu Pro Arg Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys
    1010                1015                1020

Thr Tyr  Phe Trp Lys Val Gln  His His Met Ala Pro  Thr Lys Asp
    1025                1030                1035

Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu
    1040                1045                1050

Glu Lys  Asp Val His Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys
    1055                1060                1065

His Thr  Asn Thr Leu Asn Pro  Ala His Gly Arg Gln  Val Thr Val
    1070                1075                1080

Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser
    1085                1090                1095

Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys
    1100                1105                1110
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Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe
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His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val
    1130                1135                1140

Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly
    1145                1150                1155

Ser Asn  Glu Asn Ile His Ser  Ile His Phe Ser Gly  His Val Phe
    1160                1165                1170

Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu
    1175                1180                1185

Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala
    1190                1195                1200

Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly Glu His  Leu His Ala
    1205                1210                1215

Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr
    1220                1225                1230

Pro Leu  Gly Met Ala Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr
    1235                1240                1245

Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu
    1250                1255                1260

His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe
    1265                1270                1275

Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro Met Ile  Ile His Gly
    1280                1285                1290

Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile
    1295                1300                1305

Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln
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Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe Gly
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Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro Pro
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Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser Ile
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Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn Ser
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Cys Ser Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp Ala
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Gln Ile Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr Trp
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Ser Pro Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn Ala
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Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly Val
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Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile Ser
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Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly
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Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile
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His Pro  Gln Ser Trp Val His  Gln Ile Ala Leu Arg  Met Glu Val
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
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Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
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Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
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Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
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Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
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Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1775                1780                1785

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Glu  Pro Ala Thr
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Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
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Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
```

```
Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
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Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

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

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                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780
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Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
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Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815


Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860


Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Phe Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215
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```
Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1700                1705                1710

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1760                1765                1770

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1775                1780                1785

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                1795                1800

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1820                1825                1830
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1835 1840 1845

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
1850 1855 1860

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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<210> 1137
<211> 1903
<212> PRT
<213> Artificial Sequence

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu

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                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
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Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
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Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830
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Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
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Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860


Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Phe Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
```

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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1265                1270                1275

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                1480                1485

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                1495                1500

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                1510                1515

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                1525                1530

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                1540                1545

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                1555                1560

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                1570                1575

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1580                1585                1590

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1595                1600                1605

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1610                1615                1620

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1625                1630                1635

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1640                1645                1650

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1655                1660                1665
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1670                1675                1680

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1700                1705                1710

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1715                1720                1725

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1730                1735                1740

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1745                1750                1755

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1760                1765                1770

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1775                1780                1785

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                1795                1800

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1805                1810                1815

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1820                1825                1830

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1835                1840                1845

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1850                1855                1860

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1139

```
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                  10                  15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205
```

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
```

```
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
785                 790                 795                 800

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
                805                 810                 815

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            820                 825                 830

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
        835                 840                 845

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    850                 855                 860
```

```
Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
865                 870                 875                 880


Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Ser
                885                 890                 895


Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys
            900                 905                 910


Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg
        915                 920                 925


Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg
    930                 935                 940


Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg
945                 950                 955                 960


Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu
                965                 970                 975


Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn
            980                 985                 990


Glu His Leu Gly Leu Leu Gly Pro  Tyr Ile Arg Ala Glu  Val Glu Asp
        995                 1000                1005


Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala Ser Arg  Pro Tyr Ser
    1010                1015                1020


Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu Asp Gln  Arg Gln Gly
    1025                1030                1035


Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro Asn Glu  Thr Lys Thr
    1040                1045                1050


Tyr Phe  Trp Lys Val Gln His  His Met Ala Pro Thr  Lys Asp Glu
    1055                1060                1065


Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser Asp Val  Asp Leu Glu
    1070                1075                1080
```

```
Lys Asp  Val His Ser Gly Leu  Ile Gly Pro Leu Leu  Val Cys His
    1085                1090                1095

Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg Gln Val  Thr Val Gln
    1100                1105                1110

Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp Glu Thr  Lys Ser Trp
    1115                1120                1125

Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys Arg Ala  Pro Cys Asn
    1130                1135                1140

Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu Asn Tyr  Arg Phe His
    1145                1150                1155

Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu Pro Gly  Leu Val Met
    1160                1165                1170

Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu Leu Ser  Met Gly Ser
    1175                1180                1185

Asn Glu  Asn Ile His Ser Ile  His Phe Ser Gly His  Val Phe Thr
    1190                1195                1200

Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala Leu Tyr  Asn Leu Tyr
    1205                1210                1215

Pro Gly  Val Phe Glu Thr Val  Glu Met Leu Pro Ser  Lys Ala Gly
    1220                1225                1230

Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu His Leu  His Ala Gly
    1235                1240                1245

Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn Lys Cys  Gln Thr Pro
    1250                1255                1260

Leu Gly  Met Ala Ser Gly His  Ile Arg Asp Phe Gln  Ile Thr Ala
    1265                1270                1275

Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys Leu Ala  Arg Leu His
    1280                1285                1290
```

```
Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr Lys Glu  Pro Phe Ser
    1295                1300                1305

Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met Ile Ile  His Gly Ile
    1310                1315                1320

Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser Ser Leu  Tyr Ile Ser
    1325                1330                1335

Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly Lys Lys  Trp Gln Thr
    1340                1345                1350

Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met Val Phe  Phe Gly Asn
    1355                1360                1365

Val Asp  Ser Ser Gly Ile Lys  His Asn Ile Phe Asn  Pro Pro Ile
    1370                1375                1380

Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr His Tyr  Ser Ile Arg
    1385                1390                1395

Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys Asp Leu  Asn Ser Cys
    1400                1405                1410

Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala Ile Ser  Asp Ala Gln
    1415                1420                1425

Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met Phe Ala  Thr Trp Ser
    1430                1435                1440

Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly Arg Ser  Asn Ala Trp
    1445                1450                1455

Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp Leu Gln  Val Asp Phe
    1460                1465                1470

Gln Lys  Thr Met Lys Val Thr  Gly Val Thr Thr Gln  Gly Val Lys
    1475                1480                1485

Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu Phe Leu  Ile Ser Ser
```

```
    1490                1495                1500

Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe Phe Gln  Asn Gly Lys
    1505                1510                1515

Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser Phe Thr  Pro Val Val
    1520                1525                1530

Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg Tyr Leu  Arg Ile His
    1535                1540                1545

Pro Gln  Ser Trp Val His Gln  Ile Ala Leu Arg Met  Glu Val Leu
    1550                1555                1560

Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala Gly Ser  Pro Gly Ala
    1565                1570                1575

Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu Glu Asp  Leu Ser Pro
    1580                1585                1590

Ala Thr  Gly His His His His  His His
    1595                1600
```

<210> 1140
<211> 4809
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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ggtgcgtcac ctggtacgtc gagcacgggg tcgccagggg cgtcccctgg gacgtcctca 2340

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tccgcgtcca ctggcaccgg gcctggaact ccggggagcg gcacagcgag ctcgtcgccg 2460

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ccgtccggag ccactggatc accagggagc tcgacacctt ccggcgcaac gggatcgccc 2640

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gacctggaaa aagatgtgca ctcaggcctg attggacccc ttctggtctg ccacactaac 3300

acactgaacc ctgctcatgg gagacaagtg acagtacagg aatttgctct gtttttcacc 3360

atctttgatg agaccaaaag ctggtacttc actgaaaata tggaaagaaa ctgcagggct 3420

ccctgcaata tccagatgga agatcccact tttaaagaga attatcgctt ccatgcaatc 3480

aatggctaca taatggatac actacctggc ttagtaatgg ctcaggatca aaggattcga 3540

tggtatctgc tcagcatggg cagcaatgaa aacatccatt ctattcattt cagtggacat 3600

gtgttcactg tacgaaaaaa agaggagtat aaaatggcac tgtacaatct ctatccaggt 3660

gtttttgaga cagtggaaat gttaccatcc aaagctggaa tttggcgggt ggaatgcctt 3720

attggcgagc atctacatgc tgggatgagc acacttttc tggtgtacag caataagtgt 3780

cagactcccc tgggaatggc ttctggacac attagagatt ttcagattac agcttcagga 3840

caatatggac agtgggcccc aaagctggcc agacttcatt attccggatc aatcaatgcc 3900

tggagcacca aggagccctt ttcttggatc aaggtggatc tgttggcacc aatgattatt 3960

cacggcatca agacccaggg tgcccgtcag aagttctcca gcctctacat ctctcagttt 4020

atcatcatgt atagtcttga tgggaagaag tggcagactt atcgaggaaa ttccactgga 4080

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cctccaatta ttgctcgata catccgtttg cacccaactc attatagcat tcgcagcact 4200

cttcgcatgg agttgatggg ctgtgattta aatagttgca gcatgccatt gggaatggag 4260

agtaaagcaa tatcagatgc acagattact gcttcatcct actttaccaa tatgtttgcc 4320

acctggtctc cttcaaaagc tcgacttcac ctccaaggga ggagtaatgc ctggagacct 4380

caggtgaata atccaaaaga gtggctgcaa gtggacttcc agaagacaat gaaagtcaca 4440

ggagtaacta ctcagggagt aaaatctctg cttaccagca tgtatgtgaa ggagttcctc 4500

atctccagca gtcaagatgg ccatcagtgg actctctttt ttcagaatgg caaagtaaag 4560

gtttttcagg gaaatcaaga ctccttcaca cctgtggtga actctctaga cccaccgtta 4620

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gccgaacaaa aactcatctc agaagaggat ctgtcacctg caaccggtca tcatcaccat 4800

caccattga 4809

<210> 1141
<211> 1886
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1141
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

```
Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
```

```
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460
```

```
Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685
```

```
Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
785                 790                 795                 800

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
                805                 810                 815

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            820                 825                 830

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
        835                 840                 845

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    850                 855                 860

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Ser
                885                 890                 895

Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys
            900                 905                 910
```

```
Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg
        915                 920                 925

Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg
    930                 935                 940

Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg
945                 950                 955                 960

Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu
                965                 970                 975

Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn
            980                 985                 990

Glu His Leu Gly Leu Leu Gly Pro  Tyr Ile Arg Ala Glu  Val Glu Asp
        995                 1000                1005

Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala Ser Arg  Pro Tyr Ser
    1010                1015                1020

Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu Asp Gln  Arg Gln Gly
    1025                1030                1035

Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro Asn Glu  Thr Lys Thr
    1040                1045                1050

Tyr Phe  Trp Lys Val Gln His  His Met Ala Pro Thr  Lys Asp Glu
    1055                1060                1065

Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser Asp Val  Asp Leu Glu
    1070                1075                1080

Lys Asp  Val His Ser Gly Leu  Ile Gly Pro Leu Leu  Val Cys His
    1085                1090                1095

Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg Gln Val  Thr Val Gln
    1100                1105                1110

Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp Glu Thr  Lys Ser Trp
```

```
    1115                1120                1125

Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys Arg Ala  Pro Cys Asn
    1130                1135                1140

Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu Asn Tyr  Arg Phe His
    1145                1150                1155

Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu Pro Gly  Leu Val Met
    1160                1165                1170

Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu Leu Ser  Met Gly Ser
    1175                1180                1185

Asn Glu  Asn Ile His Ser Ile  His Phe Ser Gly His  Val Phe Thr
    1190                1195                1200

Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala Leu Tyr  Asn Leu Tyr
    1205                1210                1215

Pro Gly  Val Phe Glu Thr Val  Glu Met Leu Pro Ser  Lys Ala Gly
    1220                1225                1230

Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu His Leu  His Ala Gly
    1235                1240                1245

Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn Lys Cys  Gln Thr Pro
    1250                1255                1260

Leu Gly  Met Ala Ser Gly His  Ile Arg Asp Phe Gln  Ile Thr Ala
    1265                1270                1275

Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys Leu Ala  Arg Leu His
    1280                1285                1290

Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr Lys Glu  Pro Phe Ser
    1295                1300                1305

Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met Ile Ile  His Gly Ile
    1310                1315                1320
```

```
Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser Ser Leu  Tyr Ile Ser
    1325                1330                1335

Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly Lys Lys  Trp Gln Thr
    1340                1345                1350

Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met Val Phe  Phe Gly Asn
    1355                1360                1365

Val Asp  Ser Ser Gly Ile Lys  His Asn Ile Phe Asn  Pro Pro Ile
    1370                1375                1380

Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr His Tyr  Ser Ile Arg
    1385                1390                1395

Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys Asp Leu  Asn Ser Cys
    1400                1405                1410

Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala Ile Ser  Asp Ala Gln
    1415                1420                1425

Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met Phe Ala  Thr Trp Ser
    1430                1435                1440

Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly Arg Ser  Asn Ala Trp
    1445                1450                1455

Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp Leu Gln  Val Asp Phe
    1460                1465                1470

Gln Lys  Thr Met Lys Val Thr  Gly Val Thr Thr Gln  Gly Val Lys
    1475                1480                1485

Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu Phe Leu  Ile Ser Ser
    1490                1495                1500

Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe Phe Gln  Asn Gly Lys
    1505                1510                1515

Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser Phe Thr  Pro Val Val
    1520                1525                1530
```

```
Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg Tyr Leu  Arg Ile His
    1535                1540                1545

Pro Gln  Ser Trp Val His Gln  Ile Ala Leu Arg Met  Glu Val Leu
    1550                1555                1560

Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala Pro Gly  Thr Ser Glu
    1565                1570                1575

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    1580                1585                1590

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1595                1600                1605

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1610                1615                1620

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    1625                1630                1635

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro
    1640                1645                1650

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1655                1660                1665

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1670                1675                1680

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala
    1685                1690                1695

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1700                1705                1710

Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1715                1720                1725

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1730                1735                1740
```

```
Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu
    1745                1750                1755

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    1760                1765                1770

Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1775                1780                1785

Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1790                1795                1800

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    1805                1810                1815

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Glu Pro  Ala Thr Ser
    1820                1825                1830

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1835                1840                1845

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Ala
    1850                1855                1860

Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    1865                1870                1875

Thr Gly  His His His His His  His
    1880                1885
```

<210> 1142
<211> 5661
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<210> 1143
<211> 2053
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1143
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
```

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305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525
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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750
```

```
Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975
```

```
Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
```

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    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380
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```
Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590
```

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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                 1600                 1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                 1735                 1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                 1750                 1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                 1765                 1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                 1780                 1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                 1795                 1800
```

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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                 1810                 1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                 1825                 1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                 1840                 1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                 1855                 1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                 1870                 1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                 1885                 1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                 1900                 1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                 1915                 1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                 1930                 1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                 1945                 1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                 1960                 1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                 1975                 1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                 1990                 1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
```

2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2015 2020 2025

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

<210> 1144
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<211> 2053
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1145
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn

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    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
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Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        435                 440                 445

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
            500                 505                 510

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        515                 520                 525

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
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Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
```

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Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
```

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    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215
```

```
Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425
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```
Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635
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```
Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
```

```
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                1990                1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                2005                2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                2020                2025

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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```

Pro Ala Thr Gly His His His His His His
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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
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Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Gly Ala Ser Pro
                405                 410                 415

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            420                 425                 430

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        435                 440                 445

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
    450                 455                 460

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
465                 470                 475                 480

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                485                 490                 495

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            500                 505                 510

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        515                 520                 525

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    530                 535                 540

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620
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Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
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        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1145                1150                1155

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1160                1165                1170

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1175                1180                1185

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1190                1195                1200

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1205                1210                1215

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1220                1225                1230

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1235                1240                1245

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1250                1255                1260
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1280                1285                1290

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1295                1300                1305

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1310                1315                1320

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1325                1330                1335

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1340                1345                1350

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1355                1360                1365

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1370                1375                1380

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1385                1390                1395

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1400                1405                1410

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1415                1420                1425

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1430                1435                1440

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1445                1450                1455

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1460                1465                1470
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1475                 1480                 1485


Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1490                 1495                 1500


Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1505                 1510                 1515


Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1520                 1525                 1530


Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1535                 1540                 1545


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1550                 1555                 1560


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1565                 1570                 1575


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1580                 1585                 1590


Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1595                 1600                 1605


Ser Pro  Ala Thr Gly His His  His His His His
    1610                 1615


<210> 1148
<211> 4860
<212> DNA
<213> Artificial Sequence

<220>
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      polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtggc gcgccaggtg cctcgccggg aacatcatca 1260

actggttcac ccgggtcatc cccctcggcc tcaaccggga cgggtcccgg ctcatccccc 1320

agcgccagca ctggaacagg tcctggcact cctggttccg gtacggcatc gtcatccccg 1380

ggaagctcaa caccgtccgg agcgacagga tcacctggct cgtcaccttc ggcgtcaact 1440

ggaacggggc caggggcctc acccggaacg tcctcgactg ggtcgcctgg tacgccggga 1500

tcaggaacgg cctcatcctc gcctgggtcc tcaacgccct cgggtgcgac tggttcgccg 1560

ggaactcctg gctcggggac ggcctcgtcg tcgcctgggg catcaccggg gacgagctcc 1620

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tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

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cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

ttaccaaaag gtgtaaaaca tttgaaggat tttccaattc tgccaggaga aatattcaaa 1980

tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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gggtgccaca actcagactt tcggaacaga ggcatgaccg ccttactgaa ggtttctagt 2580

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ctgagtaaaa acaatgccat tgaaccaaga agcttctctc aaaacccacc agtcttgaaa 2700

cgccatcaac gggaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

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cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

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cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

aaagatgtgc actcaggcct gattggaccc cttctggtct gccacactaa cacactgaac 3360

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gagaccaaaa gctggtactt cactgaaaat atggaaagaa actgcagggc tccctgcaat 3480

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ctcagcatgg gcagcaatga aaacatccat tctattcatt tcagtggaca tgtgttcact 3660

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ggaaatcaag actccttcac acctgtggtg aactctctag acccaccgtt actgactcgc 4680

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ggctgcgagg cacaggacct ctacggcgcc ggatcacctg gggccgaaac ggccgaacaa 4800

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<211> 2203
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
130 135 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145 150 155 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
195 200 205

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Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
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            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640
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Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860
```

```
Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880


Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895


Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910


Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925


Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940


Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Gly Ala Pro  Gly Thr Pro
    1055                1060                1065


Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1070                1075                1080
```

```
Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1085                1090                1095

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1100                1105                1110

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro
    1115                1120                1125

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1130                1135                1140

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1145                1150                1155

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1160                1165                1170

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1175                1180                1185

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1190                1195                1200

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
```

```
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905
```

```
Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                 1945                 1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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2105 2110 2115

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly

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        35                  40                  45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    50                  55                  60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480


Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495


Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510


Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525


Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540


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


Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575


Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605


Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620


Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640


Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670


Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685
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Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
```

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            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
```

```
Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                 1135                 1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                 1150                 1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                 1165                 1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                 1180                 1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                 1195                 1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                 1210                 1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                 1225                 1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                 1240                 1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                 1255                 1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                 1315                 1320
```

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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530
```

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Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
```

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    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
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Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
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Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935
```

```
Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145
```

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
2150 2155 2160

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
2165 2170 2175

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
2180 2185 2190

Asp Leu Ser Pro Ala Thr Gly His His His His His His
2195 2200 2205

<210> 1152
<211> 6621
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

agcacggggt cgcccgcctc gagcagtgat ctcggtgagc tgcctgtgga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

gaggaacccc aactacgaat gaaaaataat gaagaagcgg aagactatga tgatgatctt 1500

actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

attcgctcag ttgccaagaa gcatcctaaa acttgggtac attacattgc tgctgaagag 1620

gaggactggg actatgctcc cttagtcctc gcccccgatg gcgcgccaac cagtacggag 1680

ccgtccgagg ggagcgcacc aggaagcccg gctgggagcc cgacttctac cgaagagggt 1740

acatctaccg aaccaagtga aggttcagca ccaggcacct caacagaacc ctctgagggc 1800

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ccttcggaag ggagtgcccc tggaacatcc gaatcggcaa ccccagaatc agggccagga 1920

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tcagccccag gcaccagcac ggagccctct gagggaagcg cacctggtac cagcgaaagc 2040

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acacccgagt ccggccctgg gtctgaaccc gccacaagtg gtagtgagac accaggatca 6300

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gaggagggca ccagcacaga accaagcgag ggctccgcac ccggaacaag cactgaaccc 6420

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tcagagagtg ccacccccga gagtggccca ggcactagta ccgagccctc tgaaggcagt 6540

gcgccagcct cgagcgaaca aaaactcatc tcagaagagg atctgtcacc tgcaaccggt 6600

catcatcacc atcaccattg a 6621

<210> 1153
<211> 2203
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1153
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

```
Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285
```

```
Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
```

```
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720
```

```
Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940
```

```
Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155
```

```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1310                1315                1320

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1325                1330                1335

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1340                1345                1350

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
```

```
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1385                1390                1395

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1400                1405                1410

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                1420                1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                1435                1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560
```

```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
```

2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

<210> 1154
<211> 6612
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

agcacggggt cgcccgcctc gagcagtgat ctcggtgagc tgcctgtgga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

aaatcagtct attggcatgt gattggaatg ggcaccactc ctgaagtgca ctcaatattc 1260

ctcgaaggtc acacatttct tgtgaggaac catcgccagg ctagcttgga aatctcgcca 1320

ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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ccatccgagg gatcagctcc cggcacctca gagtcggcaa ccccggagtc tggacccgga 6180

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acctcagggt cagagacacc cggatctccg gcaggctcac caacctccac tgaggagggc 6360

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tcagcacccg gctctgagcc ggccacaagt ggcagtgaga cacccggcac ttcagagagt 6480

gccacccccg agagtggccc aggcactagt accgagccct ctgaaggcag tgcgccagcc 6540

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catcaccatt ga 6612

<210> 1155
<211> 2206
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1155
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser

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            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
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```
Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540
```

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Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765
```

```
Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
```

```
           980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185
```

```
Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                 1195                 1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                 1210                 1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                 1225                 1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                 1240                 1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                 1255                 1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                 1315                 1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                 1330                 1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                 1345                 1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                 1360                 1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                 1375                 1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                 1390                 1395
```

```
Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605
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```
Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                 1615                 1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                 1630                 1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                 1645                 1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                 1660                 1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                 1675                 1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                 1690                 1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                 1705                 1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                 1720                 1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                 1735                 1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                 1750                 1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                 1765                 1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                 1780                 1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                 1795                 1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
```

```
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010
```

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
2015 2020 2025

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
2030 2035 2040

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
2045 2050 2055

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
2060 2065 2070

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
2075 2080 2085

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
2090 2095 2100

Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
2105 2110 2115

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2120 2125 2130

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
2135 2140 2145

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
2150 2155 2160

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
2165 2170 2175

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
2180 2185 2190

Asp Leu Ser Pro Ala Thr Gly His His His His His His
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<211> 6621
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<220>
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cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

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gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

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catcatcacc atcaccattg a 6621

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<211> 2203
<212> PRT
<213> Artificial Sequence

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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
130 135 140

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Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365
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Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
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            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
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Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020
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Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
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Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230
```

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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1310                1315                1320

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1325                1330                1335

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1340                1345                1350

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1385                1390                1395

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1400                1405                1410

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                1420                1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
```

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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845
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```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055
```

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
    2060   2065   2070

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
    2075   2080   2085

Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
    2090   2095   2100

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
    2105   2110   2115

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
    2120   2125   2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
    2135   2140   2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    2150   2155   2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    2165   2170   2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
    2180   2185   2190

Pro Ala Thr Gly His His His His His His
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<211> 6612
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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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<211> 2206
<212> PRT
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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
130 135 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145 150 155 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr

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            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620
```

```
Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640


Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655


Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670


Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685


Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700


Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750


Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765


Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780


Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845
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Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260
```

```
Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
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Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1310                1315                1320

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1325                1330                1335

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1340                1345                1350

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1355                1360                1365

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1370                1375                1380

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1385                1390                1395

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1400                1405                1410

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1415                1420                1425

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1430                1435                1440

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1445                1450                1455

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470
```

```
Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680
```

```
Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
```

```
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085
```

```
Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                2155                2160

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                2170                2175

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
    2180                2185                2190

Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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            20                  25                  30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
        35                  40                  45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    50                  55                  60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220
```

```
Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240


Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255


Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270


Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285


Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300


Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320


Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335


Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350


Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365


Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380


Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400


Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415


His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430


Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445
```

```
Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
```

```
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880
```

```
Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Gly Ala Pro  Gly Thr Pro
    1055                1060                1065

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1070                1075                1080

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1085                1090                1095
```

```
Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1100                1105                1110

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro
    1115                1120                1125

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1130                1135                1140

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1145                1150                1155

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1160                1165                1170

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1175                1180                1185

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1190                1195                1200

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1280                1285                1290

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1295                1300                1305
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1355                1360                1365

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1370                1375                1380

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1385                1390                1395

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1400                1405                1410

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1415                1420                1425

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1430                1435                1440

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1445                1450                1455

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1460                1465                1470

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1475                1480                1485

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1490                1495                1500

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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```
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
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Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1535                1540                1545

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1550                1555                1560

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1565                1570                1575

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1580                1585                1590

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1595                1600                1605

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1610                1615                1620

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1625                1630                1635

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1640                1645                1650

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1655                1660                1665

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1670                1675                1680

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1685                1690                1695

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1700                1705                1710
```

```
His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1715                1720                1725

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                1735                1740

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                1750                1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                1765                1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                1780                1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1790                1795                1800

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1835                1840                1845

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1850                1855                1860

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1865                1870                1875

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1880                1885                1890

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1895                1900                1905

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1910                1915                1920
```

```
Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2000                2005                2010

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2015                2020                2025

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2030                2035                2040

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2045                2050                2055

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2060                2065                2070

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2075                2080                2085

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2090                2095                2100

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2105                2110                2115

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    2120                2125                2130
```

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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2150                2155                2160

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2165                2170                2175

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2180                2185                2190

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2195                2200                2205

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2210                2215                2220

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2225                2230                2235

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2240                2245                2250

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2255                2260                2265

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2270                2275                2280

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2285                2290                2295

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2300                2305                2310

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2315                2320                2325

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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Asp Leu Ser Pro Ala Thr Gly His His His His His His
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cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    50                  55                  60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270
```

```
Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
```

```
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700
```

```
Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
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Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925
```

```
Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Gly Ala Pro  Gly Thr Pro
    1055                1060                1065

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1070                1075                1080

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1085                1090                1095

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1100                1105                1110

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro
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Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
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```
Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
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Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1175                1180                1185

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
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Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
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Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
```

```
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
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Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
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Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
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Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1490                1495                1500

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1505                1510                1515

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1580                1585                1590

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1595                1600                1605

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1610                1615                1620

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1625                1630                1635

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1640                1645                1650

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1655                1660                1665

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1670                1675                1680

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1685                1690                1695

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1700                1705                1710

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1715                1720                1725

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1730                1735                1740

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1745                1750                1755
```

```
Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1775                1780                1785

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1790                1795                1800

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1805                1810                1815

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1820                1825                1830

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1835                1840                1845

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1850                1855                1860

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1880                1885                1890

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1895                1900                1905

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1910                1915                1920

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1925                1930                1935

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1955                1960                1965
```

```
Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1985                1990                1995

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    2000                2005                2010

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    2015                2020                2025

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2045                2050                2055

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2060                2065                2070

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    2075                2080                2085

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2090                2095                2100

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    2105                2110                2115

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    2120                2125                2130

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    2135                2140                2145

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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gggtctgaga cacccgggac ttccgagagt gccacccctg agtccggacc cgggtccgag 6240

cccgccactt ccggctccga aactcccggc acaagcgaga gcgctacccc agagtcagga 6300

ccaggaacat ctacagagcc ctctgaaggc tccgctccag ggtccccagc cggcagtccc 6360

actagcaccg aggagggaac ctctgaaagc gccacacccg aatcagggcc agggtctgag 6420

cctgctacca gcggcagcga gacaccaggc acctctgagt ccgccacacc agagtccgga 6480

cccggatctc ccgctgggag ccccacctcc actgaggagg gatctcctgc tggctctcca 6540

acatctactg aggaaggtac ctcaaccgag ccatccgagg gatcagctcc cggcacctca 6600

gagtcggcaa ccccggagtc tggacccgga acttccgaaa gtgccacacc agagtccggt 6660

cccgggactt cagaatcagc aacacccgag tccggccctg ggtctgaacc cgccacaagt 6720

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gcaggctcac caacctccac tgaggagggc accagcacag aaccaagcga gggctccgca 6840

cccggaacaa gcactgaacc cagtgagggt tcagcacccg gctctgagcc ggccacaagt 6900

ggcagtgaga cacccggcac ttcagagagt gccacccccg agagtggccc aggcactagt 6960

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<211> 2356
<212> PRT
<213> Artificial Sequence

<220>
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polypeptide

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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

```
Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
```

305 310 315 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
325 330 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
340 345 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
355 360 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
370 375 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385 390 395 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
405 410 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
420 425 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
435 440 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
450 455 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465 470 475 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
485 490 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
500 505 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
515 520 525

```
Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750
```

```
Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975
```

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


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140


Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
```

1175 1180 1185

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1190 1195 1200

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
1205 1210 1215

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
1220 1225 1230

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
1235 1240 1245

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
1250 1255 1260

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser
1265 1270 1275

Ser Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val
1280 1285 1290

Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
1295 1300 1305

Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
1310 1315 1320

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala
1325 1330 1335

Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu
1340 1345 1350

Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro
1355 1360 1365

Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala
1370 1375 1380

```
Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1460                1465                1470

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1475                1480                1485

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1490                1495                1500

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1505                1510                1515

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1520                1525                1530

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1535                1540                1545

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1550                1555                1560

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1565                1570                1575

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1580                1585                1590
```

```
Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1595                 1600                 1605

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1610                 1615                 1620

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1625                 1630                 1635

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1640                 1645                 1650

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1655                 1660                 1665

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1670                 1675                 1680

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1685                 1690                 1695

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1700                 1705                 1710

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1715                 1720                 1725

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                 1735                 1740

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                 1750                 1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                 1765                 1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                 1780                 1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1790                 1795                 1800
```

```
Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1835                1840                1845

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1850                1855                1860

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1865                1870                1875

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1880                1885                1890

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1895                1900                1905

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1910                1915                1920

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
```

```
    2000                2005                2010

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2015                2020                2025

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2030                2035                2040

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2045                2050                2055

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2060                2065                2070

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2075                2080                2085

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2090                2095                2100

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2105                2110                2115

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    2120                2125                2130

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2135                2140                2145

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2150                2155                2160

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2165                2170                2175

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2180                2185                2190

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2195                2200                2205
```

```
Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2210                 2215                 2220


Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2225                 2230                 2235


Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2240                 2245                 2250


Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2255                 2260                 2265


Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2270                 2275                 2280


Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2285                 2290                 2295


Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2300                 2305                 2310


Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2315                 2320                 2325


Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
    2330                 2335                 2340


Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
    2345                 2350                 2355
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<211> 7071
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser

```
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350
```

```
Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
```

```
Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
```

```
Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
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Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215
```

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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                 1240                 1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                 1255                 1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                 1315                 1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                 1330                 1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                 1345                 1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                 1360                 1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                 1375                 1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                 1390                 1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                 1405                 1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                 1420                 1425
```

```
Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1460                1465                1470

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1475                1480                1485

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1490                1495                1500

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1505                1510                1515

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1520                1525                1530

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1535                1540                1545

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1550                1555                1560

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1565                1570                1575

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1580                1585                1590

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1595                1600                1605

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1610                1615                1620

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1625                1630                1635
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Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1640                1645                1650

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1655                1660                1665

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1670                1675                1680

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1685                1690                1695

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1700                1705                1710

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1715                1720                1725

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                1735                1740

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                1750                1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                1765                1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                1780                1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1790                1795                1800

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
```

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Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1850                1855                1860

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1865                1870                1875

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1880                1885                1890

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1895                1900                1905

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1910                1915                1920

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2000                2005                2010

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2015                2020                2025

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2030                2035                2040
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2045                2050                2055

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2060                2065                2070

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2075                2080                2085

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2105                2110                2115

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    2120                2125                2130

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
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Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2270                2275                2280


Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2285                2290                2295


Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2300                2305                2310


Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2315                2320                2325


Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
130 135 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145 150 155 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

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Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620
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Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
```

```
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050
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Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Gly Ala Pro  Gly Thr Pro
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Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1070                1075                1080

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1085                1090                1095

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1100                1105                1110

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro
    1115                1120                1125

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1130                1135                1140

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1145                1150                1155

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1160                1165                1170

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1175                1180                1185

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1190                1195                1200

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260
```

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Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1280                1285                1290

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1295                1300                1305

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1310                1315                1320

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1325                1330                1335

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1340                1345                1350

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1355                1360                1365

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1370                1375                1380

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1385                1390                1395

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1400                1405                1410

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1415                1420                1425

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1430                1435                1440

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1445                1450                1455

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1460                1465                1470
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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1475                 1480                 1485

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1490                 1495                 1500

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1505                 1510                 1515

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1520                 1525                 1530

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1535                 1540                 1545

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1550                 1555                 1560

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1565                 1570                 1575

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1580                 1585                 1590

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1595                 1600                 1605

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1610                 1615                 1620

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1625                 1630                 1635

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1640                 1645                 1650

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1655                 1660                 1665

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1685                1690                1695

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1700                1705                1710

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1715                1720                1725

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1730                1735                1740

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1745                1750                1755

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1760                1765                1770

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1775                1780                1785

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1790                1795                1800

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1805                1810                1815

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1820                1825                1830

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1835                1840                1845

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1850                1855                1860

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1865                1870                1875
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Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1880                1885                1890

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1895                1900                1905

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1910                1915                1920

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1925                1930                1935

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1940                1945                1950

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1955                1960                1965

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1970                1975                1980

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1985                1990                1995

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    2000                2005                2010

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    2015                2020                2025

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    2030                2035                2040

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    2045                2050                2055

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    2060                2065                2070

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    2075                2080                2085
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
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Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
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Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    2135                 2140                 2145

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2150                 2155                 2160

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2165                 2170                 2175

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2285                 2290                 2295
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2375                2380                2385

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2390                2395                2400

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2405                2410                2415

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2465                2470                2475

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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<223> Description of Artificial Sequence: Synthetic polynucleotide

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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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            20   25   30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
        35   40   45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    50   55   60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65   70   75   80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85   90   95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100   105   110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115   120   125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130   135   140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145   150   155   160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165   170   175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210   215   220

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Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
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        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655
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Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880
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Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1280                1285                1290

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
```

1295 1300 1305

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
1310 1315 1320

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
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Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1340 1345 1350

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
1355 1360 1365

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
1370 1375 1380

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
1385 1390 1395

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser
1415 1420 1425

Ser Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val
1430 1435 1440

Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
1445 1450 1455

Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
1460 1465 1470

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala
1475 1480 1485

Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu
1490 1495 1500

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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1505                1510                1515

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1520                1525                1530

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1535                1540                1545

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1550                1555                1560

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1565                1570                1575

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1580                1585                1590

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1595                1600                1605

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1610                1615                1620

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1625                1630                1635

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1640                1645                1650

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1655                1660                1665

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1670                1675                1680

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1685                1690                1695

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1700                1705                1710
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His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1715                1720                1725

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                1735                1740

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                1750                1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                1765                1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                1780                1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1790                1795                1800

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1835                1840                1845

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1850                1855                1860

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1865                1870                1875

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1880                1885                1890

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1895                1900                1905

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1910                1915                1920
```

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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2000                2005                2010

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2015                2020                2025

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2030                2035                2040

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2045                2050                2055

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2060                2065                2070

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2075                2080                2085

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2090                2095                2100

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2105                2110                2115

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
```

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    2120                2125                2130

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2135                2140                2145

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2150                2155                2160

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2165                2170                2175

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2180                2185                2190

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2195                2200                2205

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2210                2215                2220

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2225                2230                2235

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2240                2245                2250

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2255                2260                2265

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2270                2275                2280

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2285                2290                2295

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2300                2305                2310

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2315                2320                2325
```

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
    2330   2335   2340

Asp Leu Ser Pro Ala Thr Gly His His His His His His
    2345   2350   2355

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<211> 7071
<212> DNA
<213> Artificial Sequence

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      polynucleotide

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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca   180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca   240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc   300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca   360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg   420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg   480

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cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg   600

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ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag   1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca   1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa   1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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<211> 2353
<212> PRT
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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    50                  55                  60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
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            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
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Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700
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Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720


Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735


Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750


Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765


Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780


Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800


Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815


Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830


Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845


Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860


Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880


Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895


Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910


Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925
```

```
Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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1130 1135 1140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
1145 1150 1155

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
1160 1165 1170

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
1175 1180 1185

Ser Ala Pro Gly Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln
1190 1195 1200

Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
1205 1210 1215

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
1220 1225 1230

Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln
1235 1240 1245

Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
1250 1255 1260

Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala
1265 1270 1275

Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu
1280 1285 1290

Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
1295 1300 1305

Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val
1310 1315 1320

Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
1325 1330 1335

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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1445                1450                1455

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1460                1465                1470

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1475                1480                1485

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1490                1495                1500

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1505                1510                1515

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1520                1525                1530

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1535                1540                1545
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Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1565                1570                1575

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1580                1585                1590

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1595                1600                1605

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1610                1615                1620

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1625                1630                1635

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1640                1645                1650

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1655                1660                1665

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1670                1675                1680

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1685                1690                1695

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1700                1705                1710

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1715                1720                1725

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1730                1735                1740

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1745                1750                1755
```

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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1760                1765                1770

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1775                1780                1785

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1790                1795                1800

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1805                1810                1815

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1820                1825                1830

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1835                1840                1845

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1850                1855                1860

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1865                1870                1875

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1880                1885                1890

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1895                1900                1905

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1910                1915                1920

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1925                1930                1935

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1940                1945                1950

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
```

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    1955                1960                1965

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1970                1975                1980

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1985                1990                1995

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    2000                2005                2010

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    2015                2020                2025

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    2030                2035                2040

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2045                2050                2055

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2060                2065                2070

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    2075                2080                2085

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2090                2095                2100

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    2105                2110                2115

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    2120                2125                2130

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2150                2155                2160
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2180                 2185                 2190


Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2195                 2200                 2205


Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2210                 2215                 2220


Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2225                 2230                 2235


Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2240                 2245                 2250


Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2255                 2260                 2265


Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2270                 2275                 2280


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2285                 2290                 2295


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2300                 2305                 2310


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2315                 2320                 2325


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2330                 2335                 2340


Pro Ala  Thr Gly His His His  His His His
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<212> DNA

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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

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polypeptide

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser

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                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300
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Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
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Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525
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Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750
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Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
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Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
```

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               965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1310                1315                1320

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1325                1330                1335

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1340                1345                1350

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                 1435                 1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                 1450                 1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590
```

```
Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                 1600                 1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                 1615                 1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                 1630                 1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                 1645                 1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                 1660                 1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                 1675                 1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                 1690                 1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                 1705                 1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                 1720                 1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                 1735                 1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                 1750                 1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                 1765                 1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                 1780                 1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
```

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    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995
```

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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

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Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350
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Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
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Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
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Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
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Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
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Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
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Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
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Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
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Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
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Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
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Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
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Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
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Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

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Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
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Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
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Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
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Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
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Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
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Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
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Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
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Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                 1405                 1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
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Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
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Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
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Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1505                1510                1515

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
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Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1550                1555                1560

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1565                1570                1575

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1580                1585                1590

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
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Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
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Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
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Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
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Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
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Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1670                1675                1680

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1685                1690                1695

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
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His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
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Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                1735                1740

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                1750                1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                1765                1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                1780                1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1790                1795                1800

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830
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Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
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Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1850                1855                1860

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1865                1870                1875

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1880                1885                1890

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1895                1900                1905

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2000                2005                2010

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2015                2020                2025

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2075                2080                2085

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2210                2215                2220

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2225                2230                2235

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
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Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
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Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
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Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
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Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145 150 155 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

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Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
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Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
```

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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
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His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
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Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
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Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
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His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
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Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
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Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
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Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
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Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
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Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu
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Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
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Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
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Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
595 600 605

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Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
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Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
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Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830
```

```
Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
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Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050
```

```
Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
```

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Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala
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Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
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Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
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Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
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Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1340 1345 1350

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
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Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
1370 1375 1380

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
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Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser
1415 1420 1425

Ser Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val
1430 1435 1440

Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
1445 1450 1455

```
Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1475                 1480                 1485

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1490                 1495                 1500

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
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Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1535                 1540                 1545

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
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Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
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Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1580                 1585                 1590

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
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Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
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Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
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Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1745                1750                1755

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1760                1765                1770

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
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Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
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Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1805                1810                1815

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1820                1825                1830

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1835                1840                1845

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1850                1855                1860

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1865                1870                1875
```

```
Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
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Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1895                1900                1905

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1910                1915                1920

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1925                1930                1935

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1940                1945                1950

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1955                1960                1965

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1970                1975                1980

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1985                1990                1995

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    2000                2005                2010

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    2015                2020                2025

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    2030                2035                2040

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    2045                2050                2055

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
```

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    2075                2080                2085

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
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Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
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Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    2135                2140                2145

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2150                2155                2160

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2165                2170                2175

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2180                2185                2190

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2225                2230                2235

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2240                2245                2250

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2255                2260                2265

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    2270                2275                2280
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2405                 2410                 2415

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2465                 2470                 2475

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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polypeptide

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205
```

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430
```

```
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
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Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
```

```
Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
```

```
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080
```

```
Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290
```

```
Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
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Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
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Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1325                1330                1335

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1340                1345                1350

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1385                1390                1395

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1400                1405                1410

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                1420                1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                1435                1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
```

```
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905
```

```
Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                 1945                 1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115
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Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    2150   2155   2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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20 25 30

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        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
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```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685
```

```
Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910
```

```
Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125
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Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                1225                1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                1240                1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                1255                1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
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```
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1460                1465                1470

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1475                1480                1485

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1490                1495                1500

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1505                1510                1515

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1520                1525                1530
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1535                1540                1545

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1550                1555                1560

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1565                1570                1575

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1580                1585                1590

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1595                1600                1605

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1610                1615                1620

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1625                1630                1635

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1640                1645                1650

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1655                1660                1665

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1670                1675                1680

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1685                1690                1695

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1700                1705                1710

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1715                1720                1725

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                1735                1740
```

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Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                1750                1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                1765                1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                1780                1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1790                1795                1800

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1835                1840                1845

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1850                1855                1860

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1865                1870                1875

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1880                1885                1890

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1895                1900                1905

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1910                1915                1920

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950
```

```
Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2000                2005                2010

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2015                2020                2025

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2030                2035                2040

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2045                2050                2055

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2060                2065                2070

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2075                2080                2085

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2090                2095                2100

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2105                2110                2115

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    2120                2125                2130

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2180                2185                2190

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2195                2200                2205

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2210                2215                2220

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2225                2230                2235

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2240                2245                2250

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2255                2260                2265

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2270                2275                2280

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2285                2290                2295

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2300                2305                2310

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2315                2320                2325

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
```

```
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
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Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960
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```
Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
               965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
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Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala
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Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu
1190 1195 1200

Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro
1205 1210 1215

Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala
1220 1225 1230

Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser
1235 1240 1245

Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
1250 1255 1260

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg
1265 1270 1275

Gln Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp
1280 1285 1290

Glu Thr Lys Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys
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Arg Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
1310 1315 1320

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
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Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
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Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
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Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1400                1405                1410

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1415                1420                1425

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1430                1435                1440

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1445                1450                1455

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575
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Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
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Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
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Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
2000 2005 2010

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
2015 2020 2025

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
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Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
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Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
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Asp Leu Ser Pro Ala Thr Gly His His His His His His
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<212> PRT
<213> Artificial Sequence

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
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Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu
545                 550                 555                 560
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Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
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    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

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

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His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Gly Ala Pro  Gly Thr Pro
    1055                1060                1065


Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1070                1075                1080


Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1085                1090                1095


Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1100                1105                1110


Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro
    1115                1120                1125


Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1130                1135                1140


Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1145                1150                1155


Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1160                1165                1170


Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1175                1180                1185


Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1190                1195                1200
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Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1205                 1210                 1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                 1225                 1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                 1240                 1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                 1255                 1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                 1270                 1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                 1285                 1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                 1300                 1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                 1315                 1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                 1330                 1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                 1345                 1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                 1360                 1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                 1375                 1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                 1390                 1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                 1405                 1410
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                 1825                 1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                 1840                 1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                 1945                 1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2180                2185                2190

Pro Ala  Thr Gly His His His  His His His
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<210> 1188
<211> 6612
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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt 300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

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cccggagcat cgccaggaac ttcgagcacg gggtcgcccg cctcgagcga cgcaagattt 540

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ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

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ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

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<211> 2206
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
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    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590
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Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815
```

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Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035
```

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Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                1225                1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
```

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    1235                1240                1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                1255                1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440
```

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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650
```

```
Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860
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Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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2060 2065 2070

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
2075 2080 2085

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
2090 2095 2100

Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
2105 2110 2115

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2120 2125 2130

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
2135 2140 2145

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
2150 2155 2160

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
2165 2170 2175

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
2180 2185 2190

Asp Leu Ser Pro Ala Thr Gly His His His His His His
2195 2200 2205

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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc 180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt 300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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actgattctg aaatggatgt ggtcaggttt gatgatgaca actctccttc ctttatccaa 1560

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tcagagagtg ccacccccga gagtggccca ggcactagta ccgagccctc tgaaggcagt 6540

gcgccagcct cgagcgaaca aaaactcatc tcagaagagg atctgtcacc tgcaaccggt 6600

catcatcacc atcaccattg a 6621

<210> 1191
<211> 2203
<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1191
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

```
Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
```

```
His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640
```

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Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
```

```
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065
```

```
Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275
```

```
Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1310                1315                1320

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1325                1330                1335

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1340                1345                1350

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1385                1390                1395

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1400                1405                1410

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                1420                1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                1435                1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
```

```
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890
```

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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100
```

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Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2180                2185                2190


Pro Ala  Thr Gly His His His  His His His
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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc      180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg      240

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ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca      360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca      420

acccccctcgg gagccacggg ttcgcccggt tcgtcaacgc cttccggagc aactggtagc      480
```

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<211> 2206
<212> PRT
<213> Artificial Sequence

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
```

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    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670
```

```
Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895
```

```
Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
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Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                 1135                 1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                 1150                 1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                 1165                 1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                 1180                 1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                 1195                 1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                 1210                 1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                 1225                 1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                 1240                 1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                 1255                 1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
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Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515
```

```
Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725
```

```
Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
```

```
    2135                2140                2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                2155                2160

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                2170                2175

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
    2180                2185                2190

Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
    2195                2200                2205


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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac      180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct      300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa      360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct      480

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gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct       600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg      660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg      720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg      780
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cctgggacat ccaccgagcc ctccgaagga tcagccccag gcaccagcac ggagccctct 1560

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catcatcacc atcaccattg a 6621

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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro

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    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
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Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495
```

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Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
```

```
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Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050

Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140
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Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1310                1315                1320

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1325                1330                1335

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1340                1345                1350
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Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1385                1390                1395

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1400                1405                1410

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                1420                1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                1435                1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560
```

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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
```

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    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965
```

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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175
```

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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<211> 2206
<212> PRT
<213> Artificial Sequence

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
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Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750
```

```
Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975
```

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Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990


Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035


Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050


Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095


Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110


Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125


Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140


Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155


Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170


Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185
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Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1310                1315                1320

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1325                1330                1335

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1340                1345                1350

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1355                1360                1365

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1370                1375                1380

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
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    1385                1390                1395

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1415                1420                1425

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1430                1435                1440

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1445                1450                1455

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590
```

```
Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                 1600                 1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                 1615                 1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                 1630                 1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                 1645                 1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                 1660                 1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                 1675                 1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                 1690                 1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                 1705                 1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                 1720                 1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                 1735                 1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                 1750                 1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                 1765                 1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                 1780                 1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                 1795                 1800
```

```
Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010
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Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
    2015   2020   2025

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
    2030   2035   2040

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    2045   2050   2055

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    2060   2065   2070

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
    2075   2080   2085

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
    2090   2095   2100

Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
    2105   2110   2115

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    2120   2125   2130

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
    2135   2140   2145

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
    2150   2155   2160

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
    2165   2170   2175

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

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn

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    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
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Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
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Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
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            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Gly Ala Pro Gly Thr Pro
        755                 760                 765

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
    770                 775                 780

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
785                 790                 795                 800
```

```
Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
                805                 810                 815

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
            820                 825                 830

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        835                 840                 845

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
    850                 855                 860

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
865                 870                 875                 880

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                885                 890                 895

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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```
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215
```

```
Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1325                1330                1335

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1340                1345                1350

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1355                1360                1365

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1370                1375                1380

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1385                1390                1395

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1400                1405                1410

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1415                1420                1425
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Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1445                1450                1455

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635
```

```
Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
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Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

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

```
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
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Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040
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Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    2045   2050   2055

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    2060   2065   2070

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
    2075   2080   2085

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
    2090   2095   2100

Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
    2105   2110   2115

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    2120   2125   2130

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
    2135   2140   2145

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
    2150   2155   2160

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
    2165   2170   2175

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
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Asp Leu Ser Pro Ala Thr Gly His His His His His His
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
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        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
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Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
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Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
```

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    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
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```

```
Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
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Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
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Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
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Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
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Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
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Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
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Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
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Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1025                1030                1035

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1040                1045                1050
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```
Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
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Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
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Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
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Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
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Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
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Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
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Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
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Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
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Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                 1420                 1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
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Arg Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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```
    1460                1465                1470

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
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Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
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Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
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Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
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Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
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Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
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Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
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Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
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Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
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Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1700                1705                1710

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1715                1720                1725

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1730                1735                1740

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1745                1750                1755

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1760                1765                1770

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1775                1780                1785

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1790                1795                1800

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1805                1810                1815

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1820                1825                1830

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
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Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
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His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1865                1870                1875
```

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Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
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Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
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Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1910                1915                1920

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1925                1930                1935

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1940                1945                1950

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1955                1960                1965

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1970                1975                1980

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1985                1990                1995

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    2000                2005                2010

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2015                2020                2025

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2045                2050                2055

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2060                2065                2070

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2075                2080                2085
```

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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2090                2095                2100

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2105                2110                2115

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2195                2200                2205

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2210                2215                2220

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2225                2230                2235

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2240                2245                2250

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2255                2260                2265

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2270                2275                2280

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
        35   40   45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50   55   60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65   70   75   80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85   90   95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100   105   110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115   120   125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130   135   140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145   150   155   160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165   170   175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210   215   220

```
Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
```

```
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655
```

```
Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880
```

```
Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095
```

```
Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
```

```
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920
```

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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser

```
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Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    50                  55                  60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65                  70                  75                  80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85                  90                  95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255
```

```
Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700
```

```
Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
```

```
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125
```

```
Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545
```

```
Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
```

```
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950
```

```
Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

```
Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300
```

```
Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
```

```
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

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

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
                565                 570                 575

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735
```

```
Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960
```

```
Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
               965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170
```

```
Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
```

```
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575
```

```
Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785
```

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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro

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Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
```

```
Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu
545                 550                 555                 560
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Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
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Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            580                 585                 590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        595                 600                 605

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    610                 615                 620

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
625                 630                 635                 640

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
                645                 650                 655

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            660                 665                 670

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        675                 680                 685

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780
```

```
Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800


Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815


Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830


Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845


Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860


Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880


Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895


Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910


Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925


Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940


Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
```

995 1000 1005

Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr
1010 1015 1020

Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu
1025 1030 1035

Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly Ser
1040 1045 1050

Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
1055 1060 1065

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
1070 1075 1080

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
1085 1090 1095

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro
1100 1105 1110

Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
1115 1120 1125

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
1130 1135 1140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
1145 1150 1155

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
1160 1165 1170

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
1175 1180 1185

Ser Ala Pro Gly Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln
1190 1195 1200

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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                 1240                 1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                 1255                 1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                 1270                 1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                 1285                 1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                 1300                 1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                 1315                 1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                 1330                 1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                 1345                 1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                 1360                 1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                 1375                 1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                 1390                 1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                 1405                 1410
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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<212> PRT
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380
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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro
545                 550                 555                 560

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                565                 570                 575

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            580                 585                 590

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
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595 600 605

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
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Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
625 630 635 640

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
645 650 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
660 665 670

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
675 680 685

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp
690 695 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705 710 715 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
725 730 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
740 745 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
755 760 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
770 775 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785 790 795 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
805 810 815

```
Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035
```

```
Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245
```

```
Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
```

```
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650
```

```
Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860
```

```
Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070
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Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
2075 2080 2085

Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
2090 2095 2100

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
2105 2110 2115

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
2120 2125 2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
115 120 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
130 135 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145 150 155 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu

```
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
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```
His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro
545                 550                 555                 560

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                565                 570                 575

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            580                 585                 590

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        595                 600                 605

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    610                 615                 620

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
625                 630                 635                 640
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Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                645                 650                 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            660                 665                 670

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        675                 680                 685

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860
```

```
Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880


Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895


Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910


Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925


Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940


Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065


Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
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    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275
```

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Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                 1285                 1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                 1300                 1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                 1315                 1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                 1330                 1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                 1345                 1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                 1360                 1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                 1375                 1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                 1390                 1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                 1405                 1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                 1420                 1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                 1435                 1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                 1450                 1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
        35                  40                  45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50                  55                  60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro
545                 550                 555                 560

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                565                 570                 575

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            580                 585                 590

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        595                 600                 605

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    610                 615                 620

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
625                 630                 635                 640

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                645                 650                 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            660                 665                 670

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
```

```
        675                 680                 685

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895
```

```
Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110
```

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Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320
```

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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys
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Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His
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Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1565 1570 1575

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
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Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1595 1600 1605

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
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Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
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Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1640 1645 1650

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
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Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe
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Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
1685 1690 1695

Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser
1700 1705 1710

Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn
1715 1720 1725

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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Thr Gly His His His His His His
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catcaccatt ga 6612

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<212> PRT
<213> Artificial Sequence

<220>
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polypeptide

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20 25 30

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

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Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65                  70                  75                  80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                85                  90                  95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            100                 105                 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        115                 120                 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
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        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495
```

```
Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly
545                 550                 555                 560

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                565                 570                 575

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            580                 585                 590

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        595                 600                 605

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    610                 615                 620

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
625                 630                 635                 640

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                645                 650                 655

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            660                 665                 670

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        675                 680                 685

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    690                 695                 700

Pro Gly Ala Ser Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720
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Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940
```

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Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065


Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080


Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110


Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125


Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140


Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
```

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    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560
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```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
```

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    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175
```

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

<210> 1218
<211> 6612
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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tcggaaacgc caggcacaag tgagtctgca actcccgagt ccggacctgg ctccgagcct 180

gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc 240

ggaaccagta ccgaacctag cgagggctct gctccgggca gcccagccgg ctctcctaca 300

tccacggagg agggcacttc cgaatccgcc accccggagt cagggccagg atctgaaccc 360

gctacctcag gcagtgagac gccaggaacg agcgagtccg ctacaccgga gagtgggcca 420

gggagccctg ctggatctcc tacgtccact gaggaagggt caccagcggg ctcgcccacc 480

agcactgaag aaggtgcctc gagcagtgat ctcggtgagc tgcctgtgga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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accgagccct ccgaaggatc agccccaggc accagcacgg agccctctga gggaagcgca 2040

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 2280

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<210> 1219
<211> 2203
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1219
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
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```
Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540
```

```
Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly
545                 550                 555                 560


Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                565                 570                 575


Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            580                 585                 590


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        595                 600                 605


Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    610                 615                 620


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
625                 630                 635                 640


Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                645                 650                 655


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            660                 665                 670


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        675                 680                 685


Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    690                 695                 700


Pro Gly Ala Ser Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720


Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735


Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750


Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
```

```
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975
```

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


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065


Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080


Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110


Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125


Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140


Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185
```

```
Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395
```

```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

```
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800
```

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                 1810                 1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                 1825                 1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                 1840                 1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                 1945                 1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2180                 2185                 2190

Pro Ala  Thr Gly His His His  His His His
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<210> 1220
<211> 6612

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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tttgtagaat tcacggatca ccttttcaac atcgctaagc caaggccacc ctggatgggt 660

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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catcaccatt ga 6612

<210> 1221
<211> 2203
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

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Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
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        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly
545                 550                 555                 560

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                565                 570                 575
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Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            580                 585                 590

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        595                 600                 605

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    610                 615                 620

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
625                 630                 635                 640

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                645                 650                 655

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            660                 665                 670

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        675                 680                 685

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    690                 695                 700

Pro Gly Ala Ser Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800
```

```
Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020
```

```
Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
```

```
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425
```

```
Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845
```

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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
```

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    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2180                2185                2190

Pro Ala  Thr Gly His His His  His His His
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
130 135 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145 150 155 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
165 170 175

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Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly
545                 550                 555                 560

Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
                565                 570                 575

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
            580                 585                 590

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        595                 600                 605

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    610                 615                 620
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Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
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Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
                645                 650                 655

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            660                 665                 670

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
        675                 680                 685

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    690                 695                 700

Pro Gly Ala Ser Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
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```
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Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260
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Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
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Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                 1300                 1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                 1315                 1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                 1330                 1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                 1345                 1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                 1360                 1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                 1375                 1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                 1390                 1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                 1405                 1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                 1420                 1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                 1435                 1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                 1450                 1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470
```

```
Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                 1600                 1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                 1615                 1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                 1630                 1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                 1645                 1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                 1660                 1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
```

```
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875
```

```
Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085
```

```
Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100


Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115


Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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ggcgcgccag gctccagccc ctccgcgagc acgggaaccg gaccaggttc gtcaccctca      180

gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt      240

gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca      300

ggatcacctg gctcaagccc tagcgcgtca accggcacgg gtccgggtgc ctcccctggc      360
```

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
        35   40   45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50   55   60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65   70   75   80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85   90   95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100   105   110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115   120   125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130   135   140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145   150   155   160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165   170   175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210   215   220

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Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
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        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly
545                 550                 555                 560

Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser
                565                 570                 575

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala
            580                 585                 590

Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
        595                 600                 605

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
    610                 615                 620

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
625                 630                 635                 640

Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
                645                 650                 655
```

```
Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr
            660                 665                 670

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr
        675                 680                 685

Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
    690                 695                 700

Ser Pro Ala Ser Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880
```

```
Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
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Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
```

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    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920
```

```
Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
```

2120 2125 2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

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<211> 6612
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt 240

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<212> PRT
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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
20 25 30

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu

```
        35                  40                  45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    50                  55                  60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65                  70                  75                  80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                85                  90                  95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            100                 105                 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        115                 120                 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255
```

```
Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly
545                 550                 555                 560

Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser
                565                 570                 575

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala
            580                 585                 590

Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
        595                 600                 605

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
    610                 615                 620

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
625                 630                 635                 640

Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
                645                 650                 655

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr
            660                 665                 670

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr
        675                 680                 685

Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
    690                 695                 700
```

```
Ser Pro Ala Ser Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
```

```
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125
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Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545
```

```
Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
```

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    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950
```

```
Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    2165   2170   2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc   240

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gctacctcag gcagtgagac gccaggaacg agcgagtccg ctacaccgga gagtgggcca   420

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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

```
Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85                  90                  95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300
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Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
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Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
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Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
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545                 550                 555                 560

Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser
                565                 570                 575

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala
            580                 585                 590

Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
        595                 600                 605

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
    610                 615                 620

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
625                 630                 635                 640

Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
                645                 650                 655

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr
            660                 665                 670

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr
        675                 680                 685

Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
    690                 695                 700

Ser Pro Ala Ser Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735
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Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960
```

```
Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
               965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
           980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
```

```
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575
```

```
Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785
```

```
Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995
```

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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly

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        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
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Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
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Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780
```

```
Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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995 1000 1005

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
1010 1015 1020

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
1025 1030 1035

Ser Ala Pro Gly Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln
1040 1045 1050

Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
1055 1060 1065

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
1070 1075 1080

Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln
1085 1090 1095

Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
1100 1105 1110

Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala
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Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
1145 1150 1155

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
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Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
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Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
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Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1250                 1255                 1260

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                 1315                 1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                 1330                 1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                 1345                 1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                 1360                 1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                 1375                 1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                 1390                 1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                 1405                 1410
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Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
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Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620
```

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Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
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Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
```

```
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                 2050                 2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                 2065                 2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                 2080                 2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                 2095                 2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                 2110                 2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                 2125                 2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                 2140                 2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                 2155                 2160

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                 2170                 2175

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
    2180                 2185                 2190

Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
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Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380
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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
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Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
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Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
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Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
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Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
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Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
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Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
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Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
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Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
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Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
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Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
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Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
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Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
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Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
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Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
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Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
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Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
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Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
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Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
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Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
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Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
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Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
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Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
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Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
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Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
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Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
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Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
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Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
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Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
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His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
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Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
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Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
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Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
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Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
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Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
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Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
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Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
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Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
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Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
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Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
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Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
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Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
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Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
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Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
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Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
115 120 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
130 135 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145 150 155 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu

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        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
```

```
His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
```

```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
```

```
Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
```

```
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1130                1135                1140

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1145                1150                1155

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1160                1165                1170

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1175                1180                1185

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1190                1195                1200

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1205                1210                1215

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1220                1225                1230

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1235                1240                1245

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1250                1255                1260

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1265                1270                1275
```

```
Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
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Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485
```

```
Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
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Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695
```

```
Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
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Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130


Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145


Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                2155                2160


Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                2170                2175


Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
        35                  40                  45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    50                  55                  60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
```

675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
835 840 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
850 855 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865 870 875 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
885 890 895

```
Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
```

```
Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1130                1135                1140

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1145                1150                1155

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1160                1165                1170

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1175                1180                1185

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1190                1195                1200

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1205                1210                1215

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1220                1225                1230

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1235                1240                1245

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1250                1255                1260

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320
```

```
Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
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Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
```

```
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725
```

```
Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
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Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935
```

```
Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145
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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
2150 2155 2160

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
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Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
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Asp Leu Ser Pro Ala Thr Gly His His His His His His
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

```
Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
```

```
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495
```

```
Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940
```

```
Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140


Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
```

```
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                1225                1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                1240                1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                1255                1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350
```

```
Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560
```

```
His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770
```

```
Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
```

```
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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                2170                2175
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Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
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Asp Leu Ser Pro Ala Thr Gly His His His His His His
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

```
Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
```

```
Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540
```

```
Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
```

```
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185
```

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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                1225                1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                1240                1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                1255                1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395
```

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Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                 1405                 1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                 1420                 1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                 1435                 1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                 1450                 1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                 1465                 1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                 1480                 1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                 1495                 1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                 1510                 1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                 1525                 1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                 1540                 1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                 1555                 1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                 1570                 1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                 1585                 1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
```

```
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800
```

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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                 2020                 2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                 2035                 2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                 2050                 2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                 2065                 2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                 2080                 2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                 2095                 2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                 2110                 2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                 2125                 2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                 2140                 2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                 2155                 2160

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                 2170                 2175

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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<212> PRT
<213> Artificial Sequence

<220>
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Met Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
115 120 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
130 135 140

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Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
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        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
```

```
Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
```

```
Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020
```

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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
```

```
    1220                1225                1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                1240                1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                1255                1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425
```

```
Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635
```

```
Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845
```

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Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                2155                2160

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                2170                2175

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
    2180                2185                2190

Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc 240

ggaaccagta ccgaacctag cgagggctct gctccgggca gcccagccgg ctctcctaca 300

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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
130 135 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145 150 155 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
165 170 175

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Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620
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```
Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
```

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        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050
```

```
Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1175                1180                1185

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1190                1195                1200

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                1210                1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                1225                1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                1240                1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                1255                1260
```

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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                 1315                 1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                 1330                 1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                 1345                 1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                 1360                 1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                 1375                 1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                 1390                 1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                 1405                 1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                 1420                 1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                 1435                 1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                 1450                 1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                 1465                 1470
```

```
Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
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    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875
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Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                 1885                 1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                 1900                 1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                 1915                 1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                 1930                 1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                 1945                 1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                 1960                 1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                 1975                 1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                 1990                 1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                 2005                 2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                 2020                 2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                 2035                 2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                 2050                 2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                 2065                 2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                 2080                 2085
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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
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Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2120 2125 2130

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
2135 2140 2145

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
2150 2155 2160

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
2165 2170 2175

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
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Asp Leu Ser Pro Ala Thr Gly His His His His His His
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            20   25   30

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        35   40   45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    50   55   60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65   70   75   80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                85   90   95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            100   105   110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        115   120   125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130   135   140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145   150   155   160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165   170   175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210   215   220

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Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
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        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
```

```
Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095
```

```
Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
```

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    1295                1300                1305

Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1310                1315                1320

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1325                1330                1335

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1340                1345                1350

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1385                1390                1395

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1400                1405                1410

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                1420                1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                1435                1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                 1600                 1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                 1615                 1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                 1630                 1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                 1645                 1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                 1660                 1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                 1675                 1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                 1690                 1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                 1705                 1710
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc 240

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polypeptide

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1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser

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Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50                  55                  60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255
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Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700
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Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750


Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765


Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780


Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
```

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        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125
```

```
Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1310                1315                1320

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1325                1330                1335
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Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1340                1345                1350

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1385                1390                1395

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1400                1405                1410

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                1420                1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                1435                1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545
```

```
Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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gcatcaacgg ggacgggacc gggggcgtca ccaggaacgt cctccaccgg ctcgccgggt 240

gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca 300

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<212> PRT
<213> Artificial Sequence

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

```
Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85                  90                  95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300
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Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
```

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        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
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Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960
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Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
               965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170
```

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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1310                1315                1320

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1325                1330                1335

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1340                1345                1350

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1385                1390                1395

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1400                1405                1410

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                1420                1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                1435                1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2180                 2185                 2190

Pro Ala  Thr Gly His His His  His His His
```

2195 2200

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<211> 6612
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc 180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt 300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

acccccctcgg gagccacggg ttcgcccggt tcgtcaacgc cttccggagc aactggtagc 480

cccggagcat cgccaggaac ttcgagcacg gggtcgcccg cctcgagcga cgcaagattt 540

cctcctagag tgccaaaatc ttttccattc aacacctcag tcgtgtacaa aaagactctg 600

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ctgctaggtc ctaccatcca ggctgaggtt tatgatacag tggtcattac acttaagaac 720

atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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<210> 1253
<211> 2203
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
20 25 30

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro

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        115                 120                 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
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Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
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Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780
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Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
```

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        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                 1300                 1305

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1310                 1315                 1320

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1325                 1330                 1335

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1340                 1345                 1350

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1355                 1360                 1365

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1370                 1375                 1380

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1385                 1390                 1395

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1400                 1405                 1410
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1415                 1420                 1425

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1430                 1435                 1440

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1445                 1450                 1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                 1600                 1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                 1615                 1620
```

```
Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
```

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    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040


Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055


Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070


Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085


Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100


Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115


Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2180                2185                2190


Pro Ala  Thr Gly His His His  His His His
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<210> 1254
<211> 6612
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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polynucleotide

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tcggaaacgc caggcacaag tgagtctgca actcccgagt ccggacctgg ctccgagcct 180

gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc 240

ggaaccagta ccgaacctag cgagggctct gctccgggca gcccagccgg ctctcctaca 300

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gctacctcag gcagtgagac gccaggaacg agcgagtccg ctacaccgga gagtgggcca 420

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tcagcacccg gctctgagcc ggccacaagt ggcagtgaga cacccggcac ttcagagagt 6480

gccacccccg agagtggccc aggcactagt accgagccct ctgaaggcag tgcgccagcc 6540

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catcaccatt ga 6612

<210> 1255
<211> 2203
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
130 135 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145 150 155 160

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Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380
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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
```

595 600 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
610 615 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
645 650 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245
```

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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1310                1315                1320

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1325                1330                1335

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1340                1345                1350

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1355                1360                1365

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1370                1375                1380

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1385                1390                1395

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1400                1405                1410

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1415                1420                1425

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1430                1435                1440

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
```

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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650
```

```
Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860
```

```
Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070
```

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
2075 2080 2085

Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
2090 2095 2100

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
2105 2110 2115

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
2120 2125 2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
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gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

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<212> PRT
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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
165 170 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
180 185 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu

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        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
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His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275
```

```
Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1310                1315                1320

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1325                1330                1335

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1340                1345                1350

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1355                1360                1365

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1370                1375                1380

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1385                1390                1395

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1400                1405                1410

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1415                1420                1425

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1430                1435                1440

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
```

```
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100
```

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
2105 2110 2115

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
2120 2125 2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

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tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt 300

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
        35                  40                  45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    50                  55                  60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
```

675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
835 840 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
850 855 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865 870 875 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
885 890 895

```
Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
```

```
Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                 1135                 1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                 1300                 1305

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1310                 1315                 1320
```

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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1355                1360                1365

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1370                1375                1380

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1385                1390                1395

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1400                1405                1410

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1415                1420                1425

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1430                1435                1440

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
```

```
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725
```

```
Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935
```

```
Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145
```

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

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<212> PRT
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

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Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65                  70                  75                  80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
                85                  90                  95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            100                 105                 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        115                 120                 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
    130                 135                 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
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        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495
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Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
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Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

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Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940
```

```
Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val
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Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
1175 1180 1185

Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
1190 1195 1200

Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
1205 1210 1215

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys
1220 1225 1230

Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp
1235 1240 1245

Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val
1250 1255 1260

Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr
1265 1270 1275

Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys
1280 1285 1290

Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Ala Pro
1295 1300 1305

Cys Asn Ile Gly Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr
1310 1315 1320

Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
1325 1330 1335

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
1340 1345 1350

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Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
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Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1370                1375                1380

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1385                1390                1395

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro
    1400                1405                1410

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro
    1415                1420                1425

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1430                1435                1440

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1445                1450                1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560
```

```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770
```

```
Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
```

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    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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<212> PRT
<213> Artificial Sequence

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polypeptide

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20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

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Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
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Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
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Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540
```

```
Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
```

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        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gly Ala Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1310                 1315                 1320

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1325                 1330                 1335

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
    1340                 1345                 1350

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    1355                 1360                 1365

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1370                 1375                 1380

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1385                 1390                 1395
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Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro
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Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro
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Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1430                1435                1440

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1445                1450                1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

```
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800
```

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                 1810                 1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                 1825                 1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                 1840                 1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                 1945                 1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010
```

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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
115 120 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
130 135 140

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Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
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Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
```

```
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
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```
Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
```

```
Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020
```

```
Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
```

```
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gly Ala Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1310                1315                1320

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1325                1330                1335

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
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Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
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Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1370                1375                1380

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1385                1390                1395

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro
    1400                1405                1410

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro
    1415                1420                1425
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Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
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Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1445                1450                1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635
```

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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
2060 2065 2070

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
2075 2080 2085

Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
2090 2095 2100

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
2105 2110 2115

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
2120 2125 2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
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Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
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Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
130 135 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145 150 155 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
165 170 175

```
Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
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Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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```
Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
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His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620
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```
Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
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Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
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Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
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Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
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Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
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Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
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Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
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Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
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Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
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Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
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Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
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Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
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Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                 1600                 1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875
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Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
        35   40   45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    50   55   60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65   70   75   80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85   90   95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100   105   110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115   120   125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130   135   140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145   150   155   160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165   170   175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180   185   190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195   200   205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210   215   220

```
Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
```

```
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
```

```
Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
```

```
Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095
```

```
Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
```

```
    1295                1300                1305

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1310                1315                1320

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1325                1330                1335

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1340                1345                1350

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1355                1360                1365

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1370                1375                1380

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1385                1390                1395

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1400                1405                1410

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1415                1420                1425

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1430                1435                1440

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1445                1450                1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920
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```
Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser

```
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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    50                  55                  60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255
```

```
Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480
```

```
Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700
```

```
Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750


Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765


Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780


Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
```

```
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125
```

```
Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
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Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1310                1315                1320

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1325                1330                1335
```

```
Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1340                1345                1350

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1355                1360                1365

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1370                1375                1380

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1385                1390                1395

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1400                1405                1410

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1415                1420                1425

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1430                1435                1440

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1445                1450                1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545
```

```
Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
```

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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950
```

```
Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                85                  90                  95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            100                 105                 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        115                 120                 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300
```

```
Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
```

```
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
```

```
Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960
```

```
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
               965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170
```

```
Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1310                1315                1320

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1325                1330                1335

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1340                1345                1350

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1355                1360                1365

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
```

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Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1385                1390                1395

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1400                1405                1410

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1415                1420                1425

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1430                1435                1440

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1445                1450                1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575
```

```
Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785
```

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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser

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        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335
```

```
Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
```

```
Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780
```

```
Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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995 1000 1005

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
1010 1015 1020

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
1025 1030 1035

Ser Ala Pro Gly Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln
1040 1045 1050

Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
1055 1060 1065

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
1070 1075 1080

Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln
1085 1090 1095

Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
1100 1105 1110

Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala
1115 1120 1125

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

Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
1145 1150 1155

Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val
1160 1165 1170

Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
1175 1180 1185

Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
1190 1195 1200

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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Ser  Pro Ala Gly
    1310                 1315                 1320

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1325                 1330                 1335

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1340                 1345                 1350

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1355                 1360                 1365

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1370                 1375                 1380

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1385                 1390                 1395

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1400                 1405                 1410
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Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1445                 1450                 1455

Gly Ser  Ala Pro Gly Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                 1600                 1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                 1615                 1620
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025
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Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
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Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
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Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
2060 2065 2070

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
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Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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<212> PRT
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Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65 70 75 80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
85 90 95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
100 105 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
115 120 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
130 135 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145 150 155 160

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Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380
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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
```

595 600 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
610 615 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
645 650 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245
```

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

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Ser  Pro Ala Gly
    1310                1315                1320

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1325                1330                1335

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1340                1345                1350

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1385                1390                1395

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1400                1405                1410

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1415                1420                1425

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1430                1435                1440

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
```

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Gly Ser  Ala Pro Gly Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650
```

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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860
```

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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115


Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145


Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160


Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175


Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc      240
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Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
130 135 140

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145 150 155 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
165 170 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
180 185 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu

```
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415
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```
His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
```

```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
```

```
Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
```

```
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275
```

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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Ser  Pro Ala Gly
    1310                 1315                 1320

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1325                 1330                 1335

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1340                 1345                 1350

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1355                 1360                 1365

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1370                 1375                 1380

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1385                 1390                 1395

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1400                 1405                 1410

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1415                 1420                 1425

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1430                 1435                 1440

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1445                 1450                 1455

Gly Ser  Ala Pro Gly Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695
```

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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100
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Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
        35                  40                  45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    50                  55                  60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65                  70                  75                  80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                85                  90                  95

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
```

```
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895
```

```
Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
```

```
Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Ser  Pro Ala Gly
    1310                 1315                 1320
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1340                1345                1350

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1355                1360                1365

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1370                1375                1380

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1385                1390                1395

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1400                1405                1410

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1415                1420                1425

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1430                1435                1440

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1445                1450                1455

Gly Ser  Ala Pro Gly Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys
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Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His
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Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1565 1570 1575

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
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Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1595 1600 1605

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1610 1615 1620

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
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Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1640 1645 1650

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1655 1660 1665

Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe
1670 1675 1680

Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
1685 1690 1695

Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser
1700 1705 1710

Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn
1715 1720 1725

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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                 1735                 1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                 1765                 1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                 1780                 1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                 1795                 1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                 1810                 1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Thr Gly His His His His His His
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catcaccatt ga 6612

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<213> Artificial Sequence

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polypeptide

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Met Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
20 25 30

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
35 40 45

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
50 55 60

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Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
65                  70                  75                  80

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                85                  90                  95

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
            100                 105                 110

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        115                 120                 125

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
    130                 135                 140

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
145                 150                 155                 160

Ser Thr Glu Glu Gly Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
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        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495
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Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
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Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
    1310                1315                1320

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1325                1330                1335

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1340                1345                1350
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Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1355                1360                1365

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
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Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1400                1405                1410

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1415                1420                1425

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    1430                1435                1440

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1445                1450                1455

Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175
```

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
2195 2200

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<211> 6612
<212> DNA
<213> Artificial Sequence

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tcggaaacgc caggcacaag tgagtctgca actcccgagt ccggacctgg ctccgagcct 180

gccactagcg gctccgagac tccgggaact tccgagagcg ctacaccaga aagcggaccc 240

ggaaccagta ccgaacctag cgagggctct gctccgggca gcccagccgg ctctcctaca 300

tccacggagg agggcacttc cgaatccgcc accccggagt cagggccagg atctgaaccc 360

gctacctcag gcagtgagac gccaggaacg agcgagtccg ctacaccgga gagtgggcca 420

gggagccctg ctggatctcc tacgtccact gaggaagggt caccagcggg ctcgcccacc 480

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

accttgcaca aatttatact acttttgct gtatttgatg aagggaaaag ttggcactca 1080

gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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<211> 2203
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Gly Ala Pro Gly Ser Ser
20 25 30

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
35 40 45

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
85 90 95

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Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            100                 105                 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
        115                 120                 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    130                 135                 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145                 150                 155                 160

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
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Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540
```

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Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
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        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
    1310                 1315                 1320

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1325                 1330                 1335

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1340                 1345                 1350

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1355                 1360                 1365

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
    1370                 1375                 1380

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1385                 1390                 1395
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Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1400                 1405                 1410

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1415                 1420                 1425

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    1430                 1435                 1440

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1445                 1450                 1455

Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

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    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800
```

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                 1810                 1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                 1825                 1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                 1840                 1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                 1945                 1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2180                 2185                 2190

Pro Ala  Thr Gly His His His  His His His
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ccaggttcgt caccctcagc atcaacgggg acgggaccgg gggcgtcacc aggaacgtcc 180

tccaccggct cgccgggtgc atcacccgga acgtcatcga ccggatcgcc agggagctcg 240

acgccatcag gcgcaacagg atcacctggc tcaagcccta gcgcgtcaac cggcacgggt 300

ccgggtgcct cccctggcac gtccagcacc ggatcacccg gatcgagccc atccgcctca 360

accggaaccg gacccggtac accagggtcg ggaacagcct cctcgtcacc aggctcctca 420

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

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gccacccccg agagtggccc aggcactagt accgagccct ctgaaggcag tgcgccagcc 6540

tcgagcgaac aaaaactcat ctcagaagag gatctgtcac ctgcaaccgg tcatcatcac 6600

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<211> 2203
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Gly Ala Pro Gly Ser Ser Pro Ser
35 40 45

Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
50 55 60

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
65 70 75 80

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
85 90 95

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
100 105 110

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
115 120 125

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
130 135 140

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Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
145                 150                 155                 160

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                165                 170                 175

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
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        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
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Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
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Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020
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```
Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
```

```
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
    1310                1315                1320

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1325                1330                1335

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1340                1345                1350

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1355                1360                1365

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
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Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1415                1420                1425
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Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
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Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1445                1450                1455

Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
```

```
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
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Pro Ala  Thr Gly His His His  His His His
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gcatcacccg gaacgtcatc gaccggatcg ccagggagct cgacgccatc aggcgcaaca 300

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
130 135 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145 150 155 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
165 170 175

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Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620
```

```
Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
```

```
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
    1310                1315                1320

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1325                1330                1335

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1340                1345                1350

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
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Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
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Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1400                1405                1410

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1415                1420                1425

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    1430                1435                1440

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1445                1450                1455

Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470
```

```
Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                 1600                 1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                 1615                 1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                 1630                 1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                 1645                 1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                 1660                 1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
```

```
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875
```

```
Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085
```

Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
2090 2095 2100

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
2105 2110 2115

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
2120 2125 2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

<210> 1290
<211> 6612
<212> DNA
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cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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<211> 2206
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210   215   220

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
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        435                 440                 445

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
            500                 505                 510

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        515                 520                 525

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
```

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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095
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Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1130                1135                1140

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1145                1150                1155

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1160                1165                1170

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1175                1180                1185

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1190                1195                1200

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1205                1210                1215

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1220                1225                1230

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1235                1240                1245

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1250                1255                1260

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
```

1295 1300 1305

Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
1310 1315 1320

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala
1325 1330 1335

Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu
1340 1345 1350

Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro
1355 1360 1365

Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala
1370 1375 1380

Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser
1385 1390 1395

Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
1400 1405 1410

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg
1415 1420 1425

Gln Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp
1430 1435 1440

Glu Thr Lys Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys
1445 1450 1455

Arg Ala Pro Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu
1460 1465 1470

Asn Tyr Arg Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu
1475 1480 1485

Pro Gly Leu Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu
1490 1495 1500

```
Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
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Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710
```

```
His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920
```

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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
```

2120 2125 2130

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
2135 2140 2145

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
2150 2155 2160

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
2165 2170 2175

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
2180 2185 2190

Asp Leu Ser Pro Ala Thr Gly His His His His His His
2195 2200 2205

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<211> 6621
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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<211> 2206
<212> PRT
<213> Artificial Sequence

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys

```
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
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Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480
```

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Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700
```

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Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750


Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765


Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780


Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
```

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Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125
```

```
Gln Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1145                1150                1155

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1160                1165                1170

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1175                1180                1185

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1190                1195                1200

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1205                1210                1215

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1220                1225                1230

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1235                1240                1245

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1250                1255                1260

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335
```

```
Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545
```

```
Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
```

```
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950
```

```
Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                2155                2160
```

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
    2165   2170   2175

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
    2180   2185   2190

Asp Leu Ser Pro Ala Thr Gly His His His His His His
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        435                 440                 445

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
            500                 505                 510

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
```

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        515                 520                 525

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
```

```
Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960
```

```
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
               965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1130                1135                1140


Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1145                1150                1155


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1160                1165                1170
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1205                 1210                 1215

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1220                 1225                 1230

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1235                 1240                 1245

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1250                 1255                 1260

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                 1315                 1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                 1330                 1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                 1345                 1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                 1360                 1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
```

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Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575
```

```
Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785
```

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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995
```

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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                2155                2160

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                2170                2175

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
    2180                2185                2190

Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val

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        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
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            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

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        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
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Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
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Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780
```

```
Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
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Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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995 1000 1005

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
1010 1015 1020

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
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Ser Ala Pro Gly Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln
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Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
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Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
1070 1075 1080

Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln
1085 1090 1095

Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
1100 1105 1110

Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala
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Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
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Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
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Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
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Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1265                 1270                 1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                 1285                 1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                 1300                 1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                 1315                 1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                 1330                 1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                 1375                 1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                 1390                 1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
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Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
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Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620
```

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Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
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Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
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Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
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Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
```

```
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
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Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
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Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
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Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025
```

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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                 2065                 2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                 2095                 2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
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Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                 2125                 2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
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Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
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Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
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Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
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Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
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Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
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Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
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Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
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Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
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Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
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Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
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Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
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Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
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Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
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Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
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Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
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Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
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Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
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Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
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Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
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Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
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His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
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Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650
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Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
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Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
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Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
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Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
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His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
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Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
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    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
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Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
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Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
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Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070
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Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
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Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
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35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
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Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
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Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp

```
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415
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Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
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Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
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Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
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Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
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Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
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Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
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Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
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Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
595 600 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
610 615 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
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```
Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
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Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
```

```
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
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Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275
```

```
Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
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Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
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Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                 1375                 1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1385                 1390                 1395

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1400                 1405                 1410

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                 1420                 1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                 1435                 1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                 1450                 1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100
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Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Thr Gly His His His His His His
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tccggccctg ggtctgaacc cgccacaagt ggtagtgaga caccaggatc agaacctgct 6300

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gccacccccg agagtggccc aggcactagt accgagccct ctgaaggcag tgcgccagcc 6540

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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460
```

```
Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
```

675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
835 840 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
850 855 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865 870 875 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
885 890 895

```
Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
```

```
Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                 1120                 1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                 1300                 1305

Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1310                 1315                 1320
```

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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
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Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1340                 1345                 1350

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1355                 1360                 1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                 1375                 1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1385                 1390                 1395

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1400                 1405                 1410

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                 1420                 1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                 1435                 1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                 1450                 1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
```

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Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys
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Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His
1550 1555 1560

Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1565 1570 1575

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
1580 1585 1590

Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1595 1600 1605

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1610 1615 1620

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1625 1630 1635

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1640 1645 1650

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1655 1660 1665

Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe
1670 1675 1680

Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
1685 1690 1695

Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser
1700 1705 1710

Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn
1715 1720 1725

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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935
```

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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

```
Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
```

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        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        435                 440                 445

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495
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Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
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Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        515                 520                 525

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940
```

```
Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
```

```
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1310                1315                1320

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1325                1330                1335

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1340                1345                1350
```

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Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1385                1390                1395

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1400                1405                1410

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                1420                1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                1435                1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560
```

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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770
```

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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                 1780                 1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                 1795                 1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                 1810                 1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                 1825                 1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                 1840                 1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                 1945                 1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
```

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    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
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Pro Ala Thr Gly His His His His His His
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540
```

```
Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
```

```
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Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185
```

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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1310                1315                1320

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1325                1330                1335

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1340                1345                1350

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1355                1360                1365

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1370                1375                1380

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1385                1390                1395
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```
Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1430                 1435                 1440

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1445                 1450                 1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

```
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800
```

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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                 1825                 1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                 1840                 1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                 1945                 1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

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

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

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Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
```

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Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
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Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
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```
Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
```

```
Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
```

```
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1310                1315                1320

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1325                1330                1335

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
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Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1415                1420                1425
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Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

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

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        435                 440                 445

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
            500                 505                 510

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        515                 520                 525

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620
```

```
Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
```

```
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260
```

```
Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1310                1315                1320

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1325                1330                1335

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
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Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1370                1375                1380

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1430                1435                1440

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470
```

```
Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                 1600                 1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                 1615                 1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                 1630                 1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                 1645                 1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                 1660                 1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
```

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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875
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```
Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085
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Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
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Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
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Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210   215   220

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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
```

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        435                 440                 445

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
            500                 505                 510

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        515                 520                 525

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
```

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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
```

```
Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095
```

```
Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
```

```
    1295                1300                1305

Cys Asn  Ile Gly Ala Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1310                1315                1320

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1325                1330                1335

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
    1340                1345                1350

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    1355                1360                1365

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1370                1375                1380

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1385                1390                1395

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro
    1400                1405                1410

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro
    1415                1420                1425

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1430                1435                1440

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1445                1450                1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500
```

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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys

```
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Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
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Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480
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Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700
```

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Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750


Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765


Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780


Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
```

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        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125
```

```
Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gly Ala Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1310                1315                1320

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1325                1330                1335
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Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
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Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    1355                1360                1365

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1370                1375                1380

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1385                1390                1395

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro
    1400                1405                1410

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro
    1415                1420                1425

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1430                1435                1440

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1445                1450                1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
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Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Thr Gly His His His His His His
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<212> PRT
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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
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Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735
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Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960
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Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
               965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170
```

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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gly Ala Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1310                1315                1320

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1325                1330                1335

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
    1340                1345                1350

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    1355                1360                1365

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
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Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1385                1390                1395

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro
    1400                1405                1410

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro
    1415                1420                1425

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1430                1435                1440

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1445                1450                1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575
```

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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995
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```
Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2180                 2185                 2190

Pro Ala  Thr Gly His His His  His His His
```

2195 2200

<210> 1318
<211> 6612
<212> DNA
<213> Artificial Sequence

<220>
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg gcgcgccaac cagtacggag ccgtccgagg ggagcgcacc aggaagcccg 1260

gctgggagcc cgacttctac cgaagagggt acatctaccg aaccaagtga aggttcagca 1320

ccaggcacct caacagaacc ctctgagggc tcggcgcctg gtacaagtga gtccgccacc 1380

ccagaatccg ggcctgggac aagcacagaa ccttcggaag ggagtgcccc tggaacatcc 1440

gaatcggcaa ccccagaatc agggccagga tctgagcccg cgacttcggg ctccgagacg 1500

cctgggacat ccaccgagcc ctccgaagga tcagccccag gcaccagcac ggagccctct 1560

gagggaagcg cacctggtac cagcgaaagc gcaactcccg aatcaggtcc cggtacgagc 1620

gagtcggcga ccccggagag cgggccaggt gcctcgagcg acagaagtta taaaagtcaa 1680

tatttgaaca atggccctca gcggattggt aggaagtaca aaaaagtccg atttatggca 1740

tacacagatg aaacctttaa gactcgtgaa gctattcagc atgaatcagg aatcttggga 1800

cctttacttt atggggaagt tggagacaca ctgttgatta tatttaagaa tcaagcaagc 1860

agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

ttaccaaaag gtgtaaaaca tttgaaggat tttccaattc tgccaggaga aatattcaaa 1980

tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

cgctattact ctagtttcgt taatatggag agagatctag cttcaggact cattggccct 2100

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gccacccccg agagtggccc aggcactagt accgagccct ctgaaggcag tgcgccagcc 6540

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catcaccatt ga 6612

<210> 1319
<211> 2203
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1319
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val

```
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560
```

```
Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780
```

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Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
```

995 1000 1005

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser
1010 1015 1020

Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
1025 1030 1035

Ser Ala Pro Gly Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln
1040 1045 1050

Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
1055 1060 1065

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
1070 1075 1080

Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln
1085 1090 1095

Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp
1100 1105 1110

Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala
1115 1120 1125

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

Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
1145 1150 1155

Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val
1160 1165 1170

Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro
1175 1180 1185

Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
1190 1195 1200

```
Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1310                 1315                 1320

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1325                 1330                 1335

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1340                 1345                 1350

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1355                 1360                 1365

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1370                 1375                 1380

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1385                 1390                 1395

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1400                 1405                 1410
```

```
Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1415                 1420                 1425

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1430                 1435                 1440

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1445                 1450                 1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                 1600                 1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                 1615                 1620
```

```
Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
```

```
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025
```

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Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2180                2185                2190

Pro Ala  Thr Gly His His His  His His His
    2195                2200
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<220>
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polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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<211> 2203
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400


Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415


Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430


Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        435                 440                 445


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460


Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480


Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495


Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
            500                 505                 510


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        515                 520                 525


Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540


Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560


Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575


Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590


Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
```

595 600 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
610 615 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
645 650 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

```
Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
            820                 825                 830

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245
```

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

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1310                1315                1320

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1325                1330                1335

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1340                1345                1350

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1355                1360                1365

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
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Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1400                1405                1410

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1415                1420                1425

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1430                1435                1440

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
```

```
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Ala Ser  Ser Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650
```

```
Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860
```

```
Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070
```

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
2075 2080 2085

Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
2090 2095 2100

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
2105 2110 2115

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
2120 2125 2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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<212> PRT
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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp

```
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415
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Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
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Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640
```

```
Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860
```

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Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
```

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    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275
```

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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gly Ala Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1310                 1315                 1320

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1325                 1330                 1335

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1340                 1345                 1350

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1355                 1360                 1365

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1370                 1375                 1380

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1385                 1390                 1395

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1400                 1405                 1410

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1415                 1420                 1425

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1430                 1435                 1440

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1445                 1450                 1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695
```

```
Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
```

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    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100
```

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
2105 2110 2115

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
2120 2125 2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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cctgggacat ccaccgagcc ctccgaagga tcagccccag gcaccagcac ggagccctct 1560

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catcaccatt ga 6612

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<212> PRT
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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
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Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        435                 440                 445

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460
```

```
Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
            500                 505                 510

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        515                 520                 525

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
```

675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
835 840 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
850 855 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865 870 875 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
885 890 895

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Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110
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Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
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Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1130                 1135                 1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                 1150                 1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                 1165                 1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                 1180                 1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                 1195                 1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                 1210                 1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Ser  Pro Ala Gly
    1310                 1315                 1320
```

```
Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1340                1345                1350

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1355                1360                1365

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1370                1375                1380

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1385                1390                1395

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1400                1405                1410

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1415                1420                1425

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1430                1435                1440

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1445                1450                1455

Gly Ser  Ala Pro Gly Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
```

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Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys
1535 1540 1545

Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His
1550 1555 1560

Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1565 1570 1575

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
1580 1585 1590

Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1595 1600 1605

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1610 1615 1620

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1625 1630 1635

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1640 1645 1650

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1655 1660 1665

Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe
1670 1675 1680

Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
1685 1690 1695

Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser
1700 1705 1710

Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn
1715 1720 1725

```
Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                 1735                 1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                 1750                 1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                 1765                 1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                 1780                 1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                 1795                 1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                 1810                 1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                 1825                 1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                 1840                 1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935
```

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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145
```

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

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<211> 6612
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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catcaccatt ga 6612

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<211> 2203
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

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Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
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        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495
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Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720
```

```
Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095


Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110


Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125


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


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
```

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    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Ser  Pro Ala Gly
    1310                1315                1320

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1325                1330                1335

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1340                1345                1350
```

```
Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1385                 1390                 1395

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1400                 1405                 1410

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1415                 1420                 1425

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1430                 1435                 1440

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1445                 1450                 1455

Gly Ser  Ala Pro Gly Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560
```

```
Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770
```

```
Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
```

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    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
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```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                405                 410                 415

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
            420                 425                 430

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        435                 440                 445

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    450                 455                 460

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
            500                 505                 510

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540
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Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
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        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                 1225                 1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                 1240                 1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                 1255                 1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                 1270                 1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                 1285                 1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Ser  Pro Ala Gly
    1310                 1315                 1320

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1325                 1330                 1335

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1340                 1345                 1350

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1355                 1360                 1365

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1370                 1375                 1380

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1385                 1390                 1395
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1430                1435                1440

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1445                1450                1455

Gly Ser  Ala Pro Gly Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

```
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800
```

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                 1810                 1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                 1825                 1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                 1840                 1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                 1945                 1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010
```

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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

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

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

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Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
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                405                 410                 415

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            420                 425                 430

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        435                 440                 445

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    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
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Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
```

```
Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
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Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
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Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
```

```
Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020
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```
Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
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Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
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Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
    1310                1315                1320

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1325                1330                1335

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
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Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
    1370                1375                1380

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1385                1390                1395

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1415                1420                1425
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Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
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Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
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Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
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Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
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Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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```
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
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Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175

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

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

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Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
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Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
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Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
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Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
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Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
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Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
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Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala
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Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
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Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620
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Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
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```
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
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```
Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260
```

```
Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
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Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
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Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
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Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
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Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
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Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
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Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    1430                1435                1440

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1445                1450                1455

Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470
```

```
Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                 1600                 1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                 1615                 1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                 1645                 1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
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```

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Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085
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Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
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Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
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Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
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Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
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Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Thr Gly His His His His His His
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210   215   220

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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
```

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        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
```

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Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880
```

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Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
               885                 890                 895


Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
               965                 970                 975


Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990


Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035


Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050


Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095
```

```
Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
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Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                 1135                 1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
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Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                 1180                 1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                 1195                 1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                 1210                 1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                 1225                 1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                 1240                 1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                 1255                 1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                 1270                 1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                 1285                 1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
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    1295                1300                1305

Arg Gly  Ala Pro Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1355                1360                1365

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1370                1375                1380

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1385                1390                1395

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr
    1400                1405                1410

Ser Gly  Ser Glu Thr Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1415                1420                1425

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1430                1435                1440

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1445                1450                1455

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500
```

```
Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
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Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
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Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710
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```
His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
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Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
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Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
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Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
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Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920
```

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Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
```

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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys

```
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Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
```

```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
```

```
Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700
```

```
Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750


Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765


Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780


Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815


Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860


Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
```

```
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125
```

```
Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
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Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Gly  Ala Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1310                1315                1320

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1325                1330                1335
```

```
Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1370                1375                1380

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1385                1390                1395

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1400                1405                1410

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1415                1420                1425

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1430                1435                1440

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1445                1450                1455

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545
```

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Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
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His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
```

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Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
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Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950
```

```
Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
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Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
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Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
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Asp Leu Ser Pro Ala Thr Gly His His His His His His
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
```

```
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960
```

```
Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
               965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170
```

```
Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
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Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Ala  Pro Cys Asn Ile Gly  Ala Pro Ser Pro Ala  Gly Ser Pro
    1310                1315                1320

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1325                1330                1335

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
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Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr
    1355                1360                1365

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
```

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Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1385                1390                1395

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1400                1405                1410

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Pro Ala
    1415                1420                1425

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr
    1430                1435                1440

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1445                1450                1455

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

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575
```

```
Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785
```

```
Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
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Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                 1810                 1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                 1825                 1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                 1840                 1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                 1855                 1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                 1870                 1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                 1885                 1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                 1900                 1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                 1915                 1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                 1930                 1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                 1945                 1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                 1960                 1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                 1975                 1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                 1990                 1995
```

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Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                2155                2160

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                2170                2175

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val

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        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780
```

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Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815


Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860


Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990


Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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995 1000 1005

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
1010 1015 1020

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
1025 1030 1035

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1040 1045 1050

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
1055 1060 1065

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
1070 1075 1080

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
1085 1090 1095

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
1100 1105 1110

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser
1115 1120 1125

Ser Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val
1130 1135 1140

Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
1145 1150 1155

Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
1160 1165 1170

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala
1175 1180 1185

Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu
1190 1195 1200

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Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
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Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
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Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                 1240                 1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                 1255                 1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                 1270                 1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                 1285                 1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                 1300                 1305

Arg Ala  Pro Cys Asn Ile Gly  Ala Pro Gly Thr Pro  Gly Ser Gly
    1310                 1315                 1320

Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1325                 1330                 1335

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1340                 1345                 1350

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser
    1355                 1360                 1365

Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly
    1370                 1375                 1380

Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1385                 1390                 1395

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1400                 1405                 1410
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Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser
    1415                 1420                 1425

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
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Gly Ala  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1445                 1450                 1455

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

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                 1480                 1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                 1495                 1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                 1510                 1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                 1525                 1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                 1540                 1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                 1555                 1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                 1570                 1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                 1585                 1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                 1600                 1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                 1615                 1620
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Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
```

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Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025
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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                2155                2160

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                2170                2175

Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
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Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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polynucleotide

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
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595 600 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
610 615 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625 630 635 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
645 650 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
660 665 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
675 680 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
690 695 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705 710 715 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
725 730 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
740 745 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
755 760 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
770 775 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785 790 795 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
805 810 815

```
Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
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Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035
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Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245
```

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Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
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Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                 1270                 1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                 1285                 1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                 1300                 1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Gly  Ala Pro Ser
    1310                 1315                 1320

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1325                 1330                 1335

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1340                 1345                 1350

Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1355                 1360                 1365

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1370                 1375                 1380

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser
    1385                 1390                 1395

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
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Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
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Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
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Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
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Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser Ser Thr  Phe Lys Glu
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Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650
```

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Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860
```

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Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070
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Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
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Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
    2105   2110   2115

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
    2135   2140   2145

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
    2150   2155   2160

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
    2165   2170   2175

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

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp

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        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
```

```
Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860
```

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Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990


Ser Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
        995                 1000                1005


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1010                1015                1020


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035


Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1040                1045                1050


Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1055                1060                1065


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
```

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    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1085                1090                1095

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275
```

```
Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Gly  Ala Pro Gly
    1310                1315                1320

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro
    1325                1330                1335

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1340                1345                1350

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
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Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1370                1375                1380

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro
    1385                1390                1395

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1400                1405                1410

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1415                1420                1425

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1430                1435                1440

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ala Ser Pro
    1445                1450                1455

Gly Thr  Ser Ser Thr Gly Ser  Pro Ala Ser Ser Thr  Phe Lys Glu
    1460                1465                1470

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485
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Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695
```

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Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                1885                1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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    1895                1900                1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                1915                1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                1930                1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                1945                1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                1960                1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                1975                1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                1990                1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                2005                2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                2020                2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                2035                2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                2050                2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                2065                2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                2080                2085

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    2090                2095                2100
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Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2105                2110                2115


Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2120                2125                2130


Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2135                2140                2145


Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2150                2155                2160


Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2165                2170                2175


Gly Ser  Ala Pro Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
    2180                2185                2190


Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt      240

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct      480

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
        35                  40                  45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    50                  55                  60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240
```

```
Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460
```

```
His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Gly Ala Pro Gly Ala Ser Pro
545                 550                 555                 560

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                565                 570                 575

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            580                 585                 590

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        595                 600                 605

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    610                 615                 620

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
625                 630                 635                 640

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
                645                 650                 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            660                 665                 670

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
```

```
        675                 680                 685

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Asp
    690                 695                 700

Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720

Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895
```

```
Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940

Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960

Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975

Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990

His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005

Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020

Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035

Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110
```

```
Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320
```

```
Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys
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Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His
1550 1555 1560

Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1565 1570 1575

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
1580 1585 1590

Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1595 1600 1605

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1610 1615 1620

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1625 1630 1635

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1640 1645 1650

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1655 1660 1665

Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe
1670 1675 1680

Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
1685 1690 1695

Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser
1700 1705 1710

Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn
1715 1720 1725

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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                 1735                 1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                 1750                 1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                 1765                 1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                 1780                 1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                 1795                 1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                 1810                 1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                 1825                 1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                 1840                 1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935
```

```
Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145
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Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    2150   2155   2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
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Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca   240

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<212> PRT
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<220>
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polypeptide

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20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

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Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65                  70                  75                  80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
                85                  90                  95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
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        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495
```

```
Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly
545                 550                 555                 560

Ala Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser
                565                 570                 575

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala
            580                 585                 590

Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
        595                 600                 605

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
    610                 615                 620

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
625                 630                 635                 640

Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
                645                 650                 655

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr
            660                 665                 670

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr
        675                 680                 685

Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
    690                 695                 700

Ser Pro Ala Ser Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly
705                 710                 715                 720
```

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Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe
                725                 730                 735

Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu
            740                 745                 750

Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln
        755                 760                 765

Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg
    770                 775                 780

Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp
785                 790                 795                 800

Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr
                805                 810                 815

Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr
            820                 825                 830

Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile
        835                 840                 845

Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn
    850                 855                 860

Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp
865                 870                 875                 880

Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro
                885                 890                 895

Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn
            900                 905                 910

Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser
        915                 920                 925

Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala
    930                 935                 940
```

```
Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His
945                 950                 955                 960


Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu
                965                 970                 975


Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys
            980                 985                 990


His Asn Ser Asp Phe Arg Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val
        995                 1000                1005


Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr
    1010                1015                1020


Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu
    1025                1030                1035


Pro Arg  Ser Phe Ser Gln Asn  Gly Ala Pro Ser Pro  Ala Gly Ser
    1040                1045                1050


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1055                1060                1065


Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1070                1075                1080


Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1085                1090                1095


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1100                1105                1110


Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1115                1120                1125


Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1130                1135                1140


Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
```

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    1145                1150                1155

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1160                1165                1170

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1175                1180                1185

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1190                1195                1200

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1205                1210                1215

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1220                1225                1230

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1235                1240                1245

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1250                1255                1260

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1265                1270                1275

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1280                1285                1290

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1295                1300                1305

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1310                1315                1320

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1325                1330                1335

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1340                1345                1350
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1355                1360                1365

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1370                1375                1380

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1385                1390                1395

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1400                1405                1410

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1415                1420                1425

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1430                1435                1440

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1445                1450                1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
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    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                2125                2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                2140                2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                2155                2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                2170                2175
```

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

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<211> 6612
<212> DNA
<213> Artificial Sequence

<220>
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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

agcacggggt cgcccgcctc gagcagtgat ctcggtgagc tgcctgtgga cgcaagattt 540

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atggcttccc atcctgtcag tcttcatgct gttggtgtat cctactggaa agcttctgag 780

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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ataactttcc ttactgctca aacactcttg atggaccttg gacagtttct actgttttgt 1380

catatctctt cccaccaaca tgatggcatg gaagcttatg tcaaagtaga cagctgtcca 1440

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tcaacgccct cgggtgcgac tggttcgccg ggaactcctg gctcggggac ggcctcgtcg 2040

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<211> 2203
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1351
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            100                 105                 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        115                 120                 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    130                 135                 140

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320
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Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540
```

```
Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
```

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        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975
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Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1295                1300                1305

Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1310                1315                1320

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1325                1330                1335

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1340                1345                1350

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1355                1360                1365

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1370                1375                1380

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1385                1390                1395
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Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1400                 1405                 1410

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1415                 1420                 1425

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1430                 1435                 1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1445                 1450                 1455

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1460                 1465                 1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                 1480                 1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                 1495                 1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                 1510                 1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                 1525                 1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                 1540                 1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                 1555                 1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                 1570                 1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                 1585                 1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

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    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800
```

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                 1810                 1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                 1825                 1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                 1840                 1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                 1855                 1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                 1870                 1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                 1885                 1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                 1900                 1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                 1915                 1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                 1930                 1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                 1945                 1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                 1960                 1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                 1975                 1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                 1990                 1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                 2005                 2010
```

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Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                 2020                 2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                 2035                 2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                 2050                 2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                 2065                 2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                 2080                 2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                 2095                 2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                 2110                 2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2120                 2125                 2130

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    2135                 2140                 2145

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2150                 2155                 2160

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2165                 2170                 2175

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2180                 2185                 2190

Pro Ala  Thr Gly His His His  His His His
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<211> 6612

<212> DNA
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<220>
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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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ggtggaagcc atacatatgt ctggcaggtc ctgaaagaga atggtccaat ggcctctgac 900

ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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catcaccatt ga 6612

<210> 1353
<211> 2203
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Gly Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
20 25 30

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
35 40 45

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
50 55 60

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
65 70 75 80

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
100 105 110

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
115 120 125

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
130 135 140

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Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
                165                 170                 175

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
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        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
385                 390                 395                 400

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575
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Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800
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Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020
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Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
```

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    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gly Ala Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1310                1315                1320

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1325                1330                1335

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
    1340                1345                1350

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    1355                1360                1365

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1370                1375                1380

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1385                1390                1395

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro
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Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro
    1415                1420                1425
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Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
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Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1445                1450                1455

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

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
```

2045 2050 2055

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
2060 2065 2070

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
2075 2080 2085

Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
2090 2095 2100

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
2105 2110 2115

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
2120 2125 2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

<210> 1354
<211> 6612
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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acggggacgg gaccgggggc gtcaccagga acgtcctcca ccggctcgcc gggtgcatca 180

cccggaacgt catcgaccgg atcgccaggg agctcgacgc catcaggcgc aacaggatca 240

cctggctcaa gccctagcgc gtcaaccggc acgggtccgg gtgcctcccc tggcacgtcc 300

agcaccggat cacccggatc gagcccatcc gcctcaaccg gaaccggacc cggtacacca 360

gggtcgggaa cagcctcctc gtcaccaggc tcctcaaccc cctcgggagc cacgggttcg 420

cccggttcgt caacgccttc cggagcaact ggtagccccg gagcatcgcc aggaacttcg 480

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ggagctgaat atgatgatca gaccagtcaa agggagaaag aagatgataa agtcttccct 840

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ccactgtgcc ttacctactc atatctttct catgtggacc tggtaaaaga cttgaattca 960

ggcctcattg gagccctact agtatgtaga gaagggagtc tggccaagga aaagacacag 1020

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gaaacaaaga actccttgat gcaggatagg gatgctgcat ctgctcgggc ctggcctaaa 1140

atgcacacag tcaatggtta tgtaaacagg tctctgccag gtctgattgg atgccacagg 1200

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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tcgagcgaac aaaaactcat ctcagaagag gatctgtcac ctgcaaccgg tcatcatcac 6600

catcaccatt ga 6612

<210> 1355
<211> 2206
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1355
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
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Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620
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```
Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
```

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        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895

Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050
```

```
Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Gly  Ala Pro Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1130                1135                1140

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1145                1150                1155

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1160                1165                1170

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1175                1180                1185

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1190                1195                1200

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1205                1210                1215

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1220                1225                1230

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1235                1240                1245

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1250                1255                1260
```

```
Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1265                1270                1275

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1280                1285                1290

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1295                1300                1305

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1310                1315                1320

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1325                1330                1335

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1340                1345                1350

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1355                1360                1365

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1370                1375                1380

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1385                1390                1395

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1400                1405                1410

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1415                1420                1425

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1430                1435                1440

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1445                1450                1455

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1460                1465                1470
```

```
Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1475                1480                1485

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1490                1495                1500

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1505                1510                1515

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1520                1525                1530

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1535                1540                1545

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1550                1555                1560

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1565                1570                1575

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1580                1585                1590

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1595                1600                1605

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1610                1615                1620

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1625                1630                1635

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1640                1645                1650

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1655                1660                1665

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
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    1670                1675                1680

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1685                1690                1695

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1700                1705                1710

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1715                1720                1725

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1730                1735                1740

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1745                1750                1755

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1760                1765                1770

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1775                1780                1785

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1790                1795                1800

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1805                1810                1815

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1820                1825                1830

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1835                1840                1845

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1850                1855                1860

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1865                1870                1875
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Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1880                 1885                 1890

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1895                 1900                 1905

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1910                 1915                 1920

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1925                 1930                 1935

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1940                 1945                 1950

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1955                 1960                 1965

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1970                 1975                 1980

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1985                 1990                 1995

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2000                 2005                 2010

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2015                 2020                 2025

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2030                 2035                 2040

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2045                 2050                 2055

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2060                 2065                 2070

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2075                 2080                 2085
```

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
2090 2095 2100

Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
2105 2110 2115

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2120 2125 2130

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
2135 2140 2145

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
2150 2155 2160

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
2165 2170 2175

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
2180 2185 2190

Asp Leu Ser Pro Ala Thr Gly His His His His His His
2195 2200 2205

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<211> 6621
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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cctgggacat ccaccgagcc ctccgaagga tcagccccag gcaccagcac ggagccctct 1560

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<211> 2203
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210   215   220

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gly Ala Pro Thr Ser Thr Glu
                405                 410                 415

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
            420                 425                 430

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
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        435                 440                 445

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
    450                 455                 460

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
465                 470                 475                 480

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                485                 490                 495

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu
            500                 505                 510

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        515                 520                 525

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    530                 535                 540

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ala Ser Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655
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Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815

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

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880
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Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990


Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035


Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050


Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065


Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080


Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095
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Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
```

```
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Gly Ala Pro Gly  Thr Pro Gly
    1310                1315                1320

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1325                1330                1335

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1340                1345                1350

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1355                1360                1365

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
    1370                1375                1380

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1385                1390                1395

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1400                1405                1410

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1415                1420                1425

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    1430                1435                1440

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1445                1450                1455

Ser Thr  Gly Ser Pro Ala Ser  Ser Thr Phe Lys Glu  Asn Tyr Arg
    1460                1465                1470

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1475                1480                1485

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1490                1495                1500
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1505                1510                1515

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1520                1525                1530

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1535                1540                1545

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1550                1555                1560

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1565                1570                1575

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1580                1585                1590

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1595                1600                1605

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1610                1615                1620

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1625                1630                1635

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1640                1645                1650

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1655                1660                1665

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1670                1675                1680

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1685                1690                1695

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1700                1705                1710
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1715                1720                1725

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1730                1735                1740

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1745                1750                1755

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1760                1765                1770

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1775                1780                1785

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1790                1795                1800

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1805                1810                1815

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1820                1825                1830

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1835                1840                1845

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1865                1870                1875

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1895                1900                1905

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1910                1915                1920
```

```
Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1955                1960                1965

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1970                1975                1980

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2000                2005                2010

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2015                2020                2025

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2030                2035                2040

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2060                2065                2070

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2075                2080                2085

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2090                2095                2100

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2105                2110                2115

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
```

2120 2125 2130

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2135 2140 2145

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2150 2155 2160

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2165 2170 2175

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2180 2185 2190

Pro Ala Thr Gly His His His His His His
2195 2200

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<211> 6612
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys

```
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Gly Ala Pro Gly
            180                 185                 190

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
        195                 200                 205

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
    210                 215                 220

Glu Thr Pro Ala Ser Ser Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255
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Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480
```

```
Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700
```

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Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720


Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735


Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750


Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765


Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780


Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
785                 790                 795                 800


Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                805                 810                 815


Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            820                 825                 830


Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        835                 840                 845


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    850                 855                 860


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
865                 870                 875                 880


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                885                 890                 895


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
            900                 905                 910


Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
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```
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Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro Pro Val Leu Lys Arg His
    930                 935                 940

Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
945                 950                 955                 960

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
                965                 970                 975

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
            980                 985                 990

Thr Arg His Tyr Phe Ile Ala Ala  Val Glu Arg Leu Trp  Asp Tyr Gly
        995                 1000                1005

Met Ser  Ser Ser Pro His Val  Leu Arg Asn Arg Ala  Gln Ser Gly
    1010                1015                1020

Ser Val  Pro Gln Phe Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp
    1025                1030                1035

Gly Ser  Phe Thr Gln Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His
    1040                1045                1050

Leu Gly  Leu Leu Gly Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn
    1055                1060                1065

Ile Met  Val Thr Phe Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe
    1070                1075                1080

Tyr Ser  Ser Leu Ile Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala
    1085                1090                1095

Glu Pro  Arg Lys Asn Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr
    1100                1105                1110

Phe Trp  Lys Val Gln His His  Met Ala Pro Thr Lys  Asp Glu Phe
    1115                1120                1125
```

```
Asp Cys  Lys Ala Trp Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys
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Asp Val  His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
    1145                1150                1155

Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
    1160                1165                1170

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1175                1180                1185

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Thr Ser
    1190                1195                1200

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1205                1210                1215

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1220                1225                1230

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1235                1240                1245

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1250                1255                1260

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1265                1270                1275

Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1280                1285                1290

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1295                1300                1305

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1310                1315                1320

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1325                1330                1335
```

```
Ser Glu  Gly Ser Ala Pro Gly  Ala Ser Ser Ala Pro  Cys Asn Ile
    1340                1345                1350

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1355                1360                1365

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1370                1375                1380

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1385                1390                1395

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1400                1405                1410

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1415                1420                1425

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1430                1435                1440

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1445                1450                1455

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1460                1465                1470

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1475                1480                1485

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1490                1495                1500

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1505                1510                1515

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1520                1525                1530

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1535                1540                1545
```

```
Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1550                1555                1560

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1565                1570                1575

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1580                1585                1590

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1595                1600                1605

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1610                1615                1620

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1625                1630                1635

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1640                1645                1650

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1655                1660                1665

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1670                1675                1680

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1685                1690                1695

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1700                1705                1710

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1715                1720                1725

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1730                1735                1740

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
```

```
    1745                1750                1755

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1760                1765                1770

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Gly Thr  Ser Glu Ser
    1775                1780                1785

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                1795                1800

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1805                1810                1815

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1820                1825                1830

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
    1835                1840                1845

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1850                1855                1860

Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1865                1870                1875

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly
    1895                1900                1905

Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr
    1910                1915                1920

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950
```

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
    1955   1960   1965

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    1970   1975   1980

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    1985   1990   1995

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
    2000   2005   2010

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    2015   2020   2025

Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly
    2030   2035   2040

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    2045   2050   2055

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Ala Ser
    2060   2065   2070

Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr
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Gly His His His His His His
    2090   2095

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<211> 6288
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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

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acagaagagg ggacaagcga aagcgctacg cctgagagtg gccctggctc tgagccagcc 660

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gatagggatg ctgcatctgc tcgggcctgg cctaaaatgc acacagtcaa tggttatgta 840

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<211> 2095
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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1 5 10 15

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            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
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```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460
```

```
Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Ala Pro Gly Ser Pro Ala Gly Ser
        595                 600                 605

Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
    610                 615                 620

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser
625                 630                 635                 640

Ser Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
```

```
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
785                 790                 795                 800

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                805                 810                 815

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            820                 825                 830

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        835                 840                 845

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    850                 855                 860

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
865                 870                 875                 880

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                885                 890                 895
```

```
Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
            900                 905                 910

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
        915                 920                 925

Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro Pro Val Leu Lys Arg His
    930                 935                 940

Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
945                 950                 955                 960

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
                965                 970                 975

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
            980                 985                 990

Thr Arg His Tyr Phe Ile Ala Ala  Val Glu Arg Leu Trp  Asp Tyr Gly
        995                 1000                1005

Met Ser  Ser Ser Pro His Val  Leu Arg Asn Arg Ala  Gln Ser Gly
    1010                1015                1020

Ser Val  Pro Gln Phe Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp
    1025                1030                1035

Gly Ser  Phe Thr Gln Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His
    1040                1045                1050

Leu Gly  Leu Leu Gly Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn
    1055                1060                1065

Ile Met  Val Thr Phe Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe
    1070                1075                1080

Tyr Ser  Ser Leu Ile Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala
    1085                1090                1095

Glu Pro  Arg Lys Asn Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr
    1100                1105                1110
```

```
Phe Trp  Lys Val Gln His His  Met Ala Pro Thr Lys  Asp Glu Phe
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Asp Cys  Lys Ala Trp Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys
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Asp Val  His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
    1145                 1150                 1155

Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
    1160                 1165                 1170

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1175                 1180                 1185

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Thr Ser
    1190                 1195                 1200

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1205                 1210                 1215

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1220                 1225                 1230

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1235                 1240                 1245

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1250                 1255                 1260

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1265                 1270                 1275

Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1280                 1285                 1290

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1295                 1300                 1305

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1310                 1315                 1320
```

```
Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
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Ser Glu  Gly Ser Ala Pro Gly  Ala Ser Ser Ala Pro  Cys Asn Ile
    1340                 1345                 1350

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1355                 1360                 1365

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1370                 1375                 1380

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1385                 1390                 1395

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1400                 1405                 1410

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1415                 1420                 1425

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1430                 1435                 1440

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1445                 1450                 1455

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1460                 1465                 1470

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1475                 1480                 1485

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1490                 1495                 1500

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1505                 1510                 1515

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
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    1520                1525                1530

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1535                1540                1545

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1550                1555                1560

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1565                1570                1575

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1580                1585                1590

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1595                1600                1605

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1610                1615                1620

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1625                1630                1635

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1640                1645                1650

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1655                1660                1665

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1670                1675                1680

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1685                1690                1695

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1700                1705                1710

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1715                1720                1725
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```
Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1730                1735                1740

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1745                1750                1755

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1760                1765                1770

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Gly Thr  Ser Glu Ser
    1775                1780                1785

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                1795                1800

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1805                1810                1815

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1820                1825                1830

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
    1835                1840                1845

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1850                1855                1860

Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1865                1870                1875

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly
    1895                1900                1905

Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr
    1910                1915                1920

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1925                1930                1935
```

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Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    1955                1960                1965

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1970                1975                1980

Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    2000                2005                2010

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    2015                2020                2025

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2030                2035                2040

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    2060                2065                2070

Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
    2075                2080                2085

Gly His  His His His His His
    2090                2095
```

<210> 1362
<211> 6288
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 1362

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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<211> 2095
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210   215   220

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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
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        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
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Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880
```

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Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095
```

```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                1165                1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                1180                1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                1225                1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                1240                1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1250                1255                1260

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                1270                1275

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                1285                1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
```

```
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Gly  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1475                1480                1485

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1490                1495                1500
```

```
Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Ala Ser  Ser Ser Trp
    1505                 1510                 1515

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1520                 1525                 1530

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1535                 1540                 1545

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1550                 1555                 1560

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1565                 1570                 1575

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1580                 1585                 1590

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1595                 1600                 1605

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1610                 1615                 1620

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1625                 1630                 1635

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1640                 1645                 1650

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1655                 1660                 1665

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1670                 1675                 1680

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1685                 1690                 1695

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1700                 1705                 1710
```

```
Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1715                1720                1725

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1730                1735                1740

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1745                1750                1755

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1760                1765                1770

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Gly Thr  Ser Glu Ser
    1775                1780                1785

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                1795                1800

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1805                1810                1815

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1820                1825                1830

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
    1835                1840                1845

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1850                1855                1860

Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1865                1870                1875

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly
    1895                1900                1905

Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr
    1910                1915                1920
```

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Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1925                1930                1935


Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950


Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    1955                1960                1965


Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1970                1975                1980


Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995


Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    2000                2005                2010


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    2015                2020                2025


Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2030                2035                2040


Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055


Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    2060                2065                2070


Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
    2075                2080                2085


Gly His  His His His His His
    2090                2095
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<211> 6288
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<211> 2095
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1365
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp

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        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
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Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860
```

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Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                1165                1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                1180                1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                1225                1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                1240                1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1250                1255                1260

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                1270                1275
```

```
Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                1285                1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                 1495                 1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                 1510                 1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                 1525                 1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                 1540                 1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                 1555                 1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Gly
    1565                 1570                 1575

Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1580                 1585                 1590

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1595                 1600                 1605

Ala Thr  Ser Gly Ser Glu Thr  Pro Ala Ser Ser Asn  Ser Cys Ser
    1610                 1615                 1620

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1625                 1630                 1635

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1640                 1645                 1650

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1655                 1660                 1665

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1670                 1675                 1680

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1685                 1690                 1695
```

```
Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1700                1705                1710

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1715                1720                1725

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1730                1735                1740

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1745                1750                1755

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1760                1765                1770

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Gly Thr  Ser Glu Ser
    1775                1780                1785

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                1795                1800

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1805                1810                1815

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1820                1825                1830

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
    1835                1840                1845

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1850                1855                1860

Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1865                1870                1875

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly
```

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    1895                1900                1905

Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr
    1910                1915                1920

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    1955                1960                1965

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1970                1975                1980

Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    2000                2005                2010

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    2015                2020                2025

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2030                2035                2040

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    2060                2065                2070

Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
    2075                2080                2085

Gly His  His His His His His
    2090                2095
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<211> 6288
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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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<211> 2095
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1367
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

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Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

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Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655


Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750


Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765


Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780


Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815


Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
```

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Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
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865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050
```

```
Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                 1060                 1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                 1075                 1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                 1090                 1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                 1105                 1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                 1120                 1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                 1150                 1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                 1165                 1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                 1180                 1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                 1195                 1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                 1210                 1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                 1225                 1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                 1240                 1245

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1250                 1255                 1260
```

```
Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                 1270                 1275

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                 1285                 1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                 1435                 1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                 1465                 1470
```

```
Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Gly Ala  Pro Gly Ser
    1625                1630                1635

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1640                1645                1650

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1655                1660                1665

Ser Glu  Thr Pro Ala Ser Ser  Glu Trp Leu Gln Val  Asp Phe Gln
```

```
    1670                1675                1680

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1685                1690                1695

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1700                1705                1710

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1715                1720                1725

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1730                1735                1740

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1745                1750                1755

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1760                1765                1770

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Gly Thr  Ser Glu Ser
    1775                1780                1785

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                1795                1800

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1805                1810                1815

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1820                1825                1830

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
    1835                1840                1845

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1850                1855                1860

Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1865                1870                1875
```

```
Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly
    1895                1900                1905

Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr
    1910                1915                1920

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    1955                1960                1965

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1970                1975                1980

Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    2000                2005                2010

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    2015                2020                2025

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2030                2035                2040

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    2060                2065                2070

Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
    2075                2080                2085
```

Gly His His His His His His
    2090   2095

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<211> 6288
<212> DNA
<213> Artificial Sequence

<220>
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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<211> 2095
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
```

595 600 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
610 615 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625 630 635 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
645 650 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
660 665 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
675 680 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
690 695 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705 710 715 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
725 730 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
740 745 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
755 760 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
770 775 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785 790 795 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
805 810 815

```
Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1160                1165                1170

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1175                1180                1185

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1190                1195                1200

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1205                1210                1215

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                1225                1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1235                1240                1245
```

```
Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                1270                1275

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                1285                1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

```
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650
```

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1685                 1690                 1695

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1700                 1705                 1710

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Ala Ser Ser  Gly Lys Val
    1715                 1720                 1725

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1730                 1735                 1740

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1745                 1750                 1755

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1760                 1765                 1770

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Gly Thr  Ser Glu Ser
    1775                 1780                 1785

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1790                 1795                 1800

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1805                 1810                 1815

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1820                 1825                 1830

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
    1835                 1840                 1845

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1850                 1855                 1860
```

```
Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1865                1870                1875

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1880                1885                1890

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly
    1895                1900                1905

Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr
    1910                1915                1920

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1925                1930                1935

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1940                1945                1950

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    1955                1960                1965

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1970                1975                1980

Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1985                1990                1995

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    2000                2005                2010

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    2015                2020                2025

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2030                2035                2040

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2045                2050                2055

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    2060                2065                2070
```

Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr
    2075   2080   2085

Gly His His His His His His
    2090   2095

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<211> 6288
<212> DNA
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<220>
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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga   540

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg   780

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catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg   960

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<211> 1945
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
35 40 45

Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Ser Asp Leu Gly
50 55 60

Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe
65 70 75 80

Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe
85 90 95

Thr Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly
100 105 110

Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile
115 120 125

Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly
130 135 140

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Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr
145                 150                 155                 160

Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His
                165                 170                 175

Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp
            180                 185                 190

Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys
        195                 200                 205

Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly
    210                 215                 220

Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu
225                 230                 235                 240

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
                245                 250                 255

Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
            260                 265                 270

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
        275                 280                 285

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
    290                 295                 300

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
305                 310                 315                 320

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
                325                 330                 335

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
            340                 345                 350

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
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        355                 360                 365

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
    370                 375                 380

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
385                 390                 395                 400

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
                405                 410                 415

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
            420                 425                 430

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575
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Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
    770                 775                 780

Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
785                 790                 795                 800
```

```
Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                805                 810                 815

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            820                 825                 830

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        835                 840                 845

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    850                 855                 860

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
865                 870                 875                 880

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                885                 890                 895

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
            900                 905                 910

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
        915                 920                 925

Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro Pro Val Leu Lys Arg His
    930                 935                 940

Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
945                 950                 955                 960

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
                965                 970                 975

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
            980                 985                 990

Thr Arg His Tyr Phe Ile Ala Ala  Val Glu Arg Leu Trp  Asp Tyr Gly
        995                 1000                1005

Met Ser  Ser Ser Pro His Val  Leu Arg Asn Arg Ala  Gln Ser Gly
    1010                1015                1020
```

```
Ser Val  Pro Gln Phe Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp
    1025                1030                1035

Gly Ser  Phe Thr Gln Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His
    1040                1045                1050

Leu Gly  Leu Leu Gly Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn
    1055                1060                1065

Ile Met  Val Thr Phe Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe
    1070                1075                1080

Tyr Ser  Ser Leu Ile Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala
    1085                1090                1095

Glu Pro  Arg Lys Asn Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr
    1100                1105                1110

Phe Trp  Lys Val Gln His His  Met Ala Pro Thr Lys  Asp Glu Phe
    1115                1120                1125

Asp Cys  Lys Ala Trp Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys
    1130                1135                1140

Asp Val  His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
    1145                1150                1155

Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
    1160                1165                1170

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1175                1180                1185

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1190                1195                1200

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1205                1210                1215

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
```

```
    1220                1225                1230

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1235                1240                1245

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1250                1255                1260

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1265                1270                1275

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1280                1285                1290

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1295                1300                1305

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1310                1315                1320

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1325                1330                1335

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1340                1345                1350

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1355                1360                1365

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1370                1375                1380

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1385                1390                1395

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1400                1405                1410

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                1420                1425
```

```
Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                 1435                 1440

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                 1450                 1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                 1465                 1470

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                 1480                 1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1490                 1495                 1500

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1505                 1510                 1515

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1520                 1525                 1530

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1535                 1540                 1545

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1550                 1555                 1560

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1565                 1570                 1575

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1580                 1585                 1590

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1595                 1600                 1605

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1610                 1615                 1620

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Gly Thr  Ser Glu Ser
    1625                 1630                 1635
```

```
Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1640                1645                1650

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1655                1660                1665

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1670                1675                1680

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
    1685                1690                1695

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1700                1705                1710

Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1715                1720                1725

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly
    1745                1750                1755

Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr
    1760                1765                1770

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    1805                1810                1815

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1820                1825                1830

Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845
```

```
Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1850                1855                1860


Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1865                1870                1875


Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1880                1885                1890


Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905


Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1910                1915                1920


Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
    1925                1930                1935


Gly His  His His His His His
    1940                1945
```

<210> 1372
<211> 5838
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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cctgagagtg gccctggctc tgagccagcc acctccggct ctgaaacccc tgcctcgagc 180

agtgatctcg gtgagctgcc tgtggacgca agatttcctc ctagagtgcc aaaatctttt 240

ccattcaaca cctcagtcgt gtacaaaaag actctgtttg tagaattcac ggatcacctt 300

ttcaacatcg ctaagccaag gccaccctgg atgggtctgc taggtcctac catccaggct 360

gaggtttatg atacagtggt cattacactt aagaacatgg cttcccatcc tgtcagtctt 420

catgctgttg gtgtatccta ctggaaagct tctgagggag ctgaatatga tgatcagacc 480

agtcaaaggg agaaagaaga tgataaagtc ttccctggtg gaagccatac atatgtctgg 540

caggtcctga aagagaatgg tccaatggcc tctgacccac tgtgccttac ctactcatat 600

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aacaggtctc tgccaggtct gattggatgc cacaggaaat cagtctattg gcatgtgatt 900

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<210> 1373
<211> 1945
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1373
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

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Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
                405                 410                 415

Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
            420                 425                 430

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Asp Arg Ser
        435                 440                 445

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
    450                 455                 460

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
465                 470                 475                 480

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
                485                 490                 495

Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser
            500                 505                 510

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
        515                 520                 525

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
    530                 535                 540

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
545                 550                 555                 560
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Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
                565                 570                 575

Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro
            580                 585                 590

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
        595                 600                 605

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
    610                 615                 620

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
625                 630                 635                 640

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
                645                 650                 655

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
            660                 665                 670

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
        675                 680                 685

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
    690                 695                 700

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
705                 710                 715                 720

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
                725                 730                 735

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
            740                 745                 750

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
        755                 760                 765

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
```

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    770                 775                 780

Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
785                 790                 795                 800

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                805                 810                 815

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            820                 825                 830

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
        835                 840                 845

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    850                 855                 860

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
865                 870                 875                 880

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                885                 890                 895

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
            900                 905                 910

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
        915                 920                 925

Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro Pro Val Leu Lys Arg His
    930                 935                 940

Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
945                 950                 955                 960

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
                965                 970                 975

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
            980                 985                 990
```

```
Thr Arg His Tyr Phe Ile Ala Ala  Val Glu Arg Leu Trp  Asp Tyr Gly
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Met Ser  Ser Ser Pro His Val  Leu Arg Asn Arg Ala  Gln Ser Gly
    1010                1015                1020


Ser Val  Pro Gln Phe Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp
    1025                1030                1035


Gly Ser  Phe Thr Gln Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His
    1040                1045                1050


Leu Gly  Leu Leu Gly Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn
    1055                1060                1065


Ile Met  Val Thr Phe Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe
    1070                1075                1080


Tyr Ser  Ser Leu Ile Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala
    1085                1090                1095


Glu Pro  Arg Lys Asn Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr
    1100                1105                1110


Phe Trp  Lys Val Gln His His  Met Ala Pro Thr Lys  Asp Glu Phe
    1115                1120                1125


Asp Cys  Lys Ala Trp Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys
    1130                1135                1140


Asp Val  His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
    1145                1150                1155


Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
    1160                1165                1170


Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1175                1180                1185


Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1190                1195                1200
```

```
Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1205                 1210                 1215

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1220                 1225                 1230

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1235                 1240                 1245

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1250                 1255                 1260

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1265                 1270                 1275

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1280                 1285                 1290

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1295                 1300                 1305

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1310                 1315                 1320

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1325                 1330                 1335

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1340                 1345                 1350

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1355                 1360                 1365

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1370                 1375                 1380

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1385                 1390                 1395

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1400                 1405                 1410
```

```
Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                 1420                 1425

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                 1435                 1440

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                 1450                 1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                 1465                 1470

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                 1480                 1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1490                 1495                 1500

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1505                 1510                 1515

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1520                 1525                 1530

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1535                 1540                 1545

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1550                 1555                 1560

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1565                 1570                 1575

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1580                 1585                 1590

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1595                 1600                 1605

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
```

1610 1615 1620

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Pro Gly Thr Ser Glu Ser
1625 1630 1635

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
1640 1645 1650

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
1655 1660 1665

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
1670 1675 1680

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
1685 1690 1695

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
1700 1705 1710

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
1715 1720 1725

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
1730 1735 1740

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
1745 1750 1755

Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
1760 1765 1770

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1775 1780 1785

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
1790 1795 1800

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
1805 1810 1815

```
Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1820                1825                1830

Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1850                1855                1860

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1865                1870                1875

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1880                1885                1890

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1910                1915                1920

Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
    1925                1930                1935

Gly His  His His His His His
    1940                1945
```

<210> 1374
<211> 5838
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<211> 1948
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1375
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
```

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305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525
```

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Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750
```

```
Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975
```

```
Arg Ala Gln Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
            980                 985                 990


Glu Glu Gly Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
        995                 1000                1005


Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Ala Ser  Ser Arg Ala
    1010                1015                1020


Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
    1025                1030                1035


Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1040                1045                1050


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1055                1060                1065


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1070                1075                1080


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1085                1090                1095


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1100                1105                1110


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1115                1120                1125


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1130                1135                1140


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1145                1150                1155


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1160                1165                1170


Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
```

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Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Ala Pro
1190 1195 1200

Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg
1205 1210 1215

Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu
1220 1225 1230

Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met
1235 1240 1245

Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His Val
1250 1255 1260

Phe Thr Val Arg Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn
1265 1270 1275

Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys
1280 1285 1290

Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His
1295 1300 1305

Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1310 1315 1320

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
1325 1330 1335

Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1340 1345 1350

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1355 1360 1365

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1370 1375 1380

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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1385                1390                1395

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1400                1405                1410

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1415                1420                1425

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1430                1435                1440

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1445                1450                1455

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1460                1465                1470

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1475                1480                1485

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1490                1495                1500

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1505                1510                1515

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1520                1525                1530

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1535                1540                1545

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1550                1555                1560

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1565                1570                1575

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1580                1585                1590
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1595                1600                1605

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1610                1615                1620

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1625                1630                1635

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1640                1645                1650

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1655                1660                1665

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1670                1675                1680

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1685                1690                1695

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1700                1705                1710

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1715                1720                1725

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1730                1735                1740

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1745                1750                1755

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1760                1765                1770

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1775                1780                1785

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1790                1795                1800
```

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
1805 1810 1815

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
1820 1825 1830

Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
1835 1840 1845

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
1850 1855 1860

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
1865 1870 1875

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1880 1885 1890

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
1895 1900 1905

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1910 1915 1920

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
1925 1930 1935

Pro Ala Thr Gly His His His His His His
1940 1945

<210> 1376
<211> 5847
<212> DNA
<213> Artificial Sequence

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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<211> 1945
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1377
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

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Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
```

```
Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
```

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                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940
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Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155
```

```
Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1160                 1165                 1170

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1175                 1180                 1185

Thr Ser  Gly Ser Glu Thr Pro  Ala Ser Ser Ala Pro  Cys Asn Ile
    1190                 1195                 1200

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1205                 1210                 1215

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1220                 1225                 1230

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1235                 1240                 1245

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1250                 1255                 1260

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1265                 1270                 1275

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1280                 1285                 1290

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1295                 1300                 1305

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1310                 1315                 1320

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1325                 1330                 1335

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1340                 1345                 1350

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1355                 1360                 1365
```

```
Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1370                1375                1380

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1385                1390                1395

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1400                1405                1410

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                1420                1425

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                1435                1440

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                1450                1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                1465                1470

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                1480                1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1490                1495                1500

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1505                1510                1515

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1520                1525                1530

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1535                1540                1545

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1550                1555                1560

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
```

1565 1570 1575

Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn
1580 1585 1590

Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro
1595 1600 1605

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
1610 1615 1620

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Pro Gly Thr Ser Glu Ser
1625 1630 1635

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
1640 1645 1650

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
1655 1660 1665

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
1670 1675 1680

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
1685 1690 1695

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
1700 1705 1710

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
1715 1720 1725

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
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Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
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Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
1760 1765 1770

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Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    1805                1810                1815

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1820                1825                1830

Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                1840                1845

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1850                1855                1860

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1865                1870                1875

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1880                1885                1890

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    1910                1915                1920

Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
    1925                1930                1935

Gly His  His His His His His
    1940                1945
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<210> 1378
<211> 5838
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polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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<211> 2053
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

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Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
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            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
                405                 410                 415

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            420                 425                 430

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        435                 440                 445

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    450                 455                 460

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
465                 470                 475                 480
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Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
                485                 490                 495

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            500                 505                 510

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        515                 520                 525

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
    530                 535                 540

Pro Glu Ser Gly Pro Gly Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
        595                 600                 605

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
    610                 615                 620

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625                 630                 635                 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
                645                 650                 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
            660                 665                 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
        675                 680                 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
    690                 695                 700
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Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705                 710                 715                 720


Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
                725                 730                 735


Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
            740                 745                 750


Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
        755                 760                 765


Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
    770                 775                 780


Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785                 790                 795                 800


Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
                805                 810                 815


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


Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845


Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860


Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880


Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly
                885                 890                 895


Ala Pro Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            900                 905                 910


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        915                 920                 925
```

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Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    930                 935                 940

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
945                 950                 955                 960

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                965                 970                 975

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            980                 985                 990

Pro Gly Thr Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
        995                 1000                1005

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1010                1015                1020

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1025                1030                1035

Ser Ala  Pro Gly Ala Ser Ser  Pro Pro Val Leu Lys  Arg His Gln
    1040                1045                1050

Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser Asp Gln  Glu Glu Ile
    1055                1060                1065

Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
    1070                1075                1080

Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys Val Val  Phe Gln Glu
```

```
    1130                1135                1140

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1190                1195                1200

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1205                1210                1215

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1220                1225                1230

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1235                1240                1245

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1250                1255                1260

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
    1280                1285                1290

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545
```

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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755
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Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                 1765                 1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                 1780                 1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                 1795                 1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                 1810                 1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                 1825                 1830

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                 1840                 1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                 1855                 1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                 1870                 1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                 1885                 1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                 1900                 1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                 1915                 1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                 1930                 1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                 1945                 1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
```

1955 1960 1965

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
1970 1975 1980

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1985 1990 1995

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2000 2005 2010

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2015 2020 2025

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
2030 2035 2040

Pro Ala Thr Gly His His His His His His
2045 2050

<210> 1380
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg gcgcgccaac cagtacggag ccgtccgagg ggagcgcacc aggaagcccg 1260

gctgggagcc cgacttctac cgaagagggt acatctaccg aaccaagtga aggttcagca 1320

ccaggcacct caacagaacc ctctgagggc tcggcgcctg gtacaagtga gtccgccacc 1380

ccagaatccg ggcctgggac aagcacagaa ccttcggaag ggagtgcccc tggaacatcc 1440

gaatcggcaa ccccagaatc agggccagga tctgagcccg cgacttcggg ctccgagacg 1500

cctgggacat ccaccgagcc ctccgaagga tcagccccag gcaccagcac ggagccctct 1560

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agaccatata acatctaccc tcacggaatc actgatgtcc gtcctttgta ttcaaggaga 1920

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tataaatgga cagtgactgt agaagatggg ccaactaaat cagatcctcg gtgcctgacc 2040

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gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 3660

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<211> 2056
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val

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                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
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Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525
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Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750
```

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Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
```

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               965                 970                 975

Arg Ala Gln Gly Ala Pro Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
            980                 985                 990

Pro Gly Ser Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
        995                 1000                1005

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1010                1015                1020

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1025                1030                1035

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1040                1045                1050

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1055                1060                1065

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1070                1075                1080

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1085                1090                1095

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1100                1105                1110

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1115                1120                1125

Ser Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    1130                1135                1140

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    1145                1150                1155

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1160                1165                1170
```

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Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1175                1180                1185

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1190                1195                1200

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1205                1210                1215

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1220                1225                1230

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1235                1240                1245

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1250                1255                1260

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1265                1270                1275

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1280                1285                1290

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1295                1300                1305

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1310                1315                1320

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1325                1330                1335

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1340                1345                1350

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1355                1360                1365

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1370                1375                1380
```

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Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1385                1390                1395

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1400                1405                1410

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1415                1420                1425

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1430                1435                1440

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1445                1450                1455

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1460                1465                1470

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1475                1480                1485

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1490                1495                1500

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1505                1510                1515

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1520                1525                1530

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1535                1540                1545

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1550                1555                1560

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1565                1570                1575

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1580                1585                1590
```

```
Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1595                 1600                 1605

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1610                 1615                 1620

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1625                 1630                 1635

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1640                 1645                 1650

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1655                 1660                 1665

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1670                 1675                 1680

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1685                 1690                 1695

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1700                 1705                 1710

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1715                 1720                 1725

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    1730                 1735                 1740

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1745                 1750                 1755

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1760                 1765                 1770

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1775                 1780                 1785

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
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    1790                1795                1800

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1805                1810                1815

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1820                1825                1830

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1835                1840                1845

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1850                1855                1860

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    1865                1870                1875

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    1880                1885                1890

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1895                1900                1905

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1910                1915                1920

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1925                1930                1935

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    1940                1945                1950

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1955                1960                1965

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1970                1975                1980

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1985                1990                1995
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Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
2000 2005 2010

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
2015 2020 2025

Gly Ser Ala Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
2030 2035 2040

Asp Leu Ser Pro Ala Thr Gly His His His His His His
2045 2050 2055

<210> 1382
<211> 6171
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 1382
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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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<210> 1383
<211> 2053
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1383
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
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Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
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Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
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785 790 795 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
805 810 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
820 825 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
835 840 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
850 855 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865 870 875 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
885 890 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
900 905 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
915 920 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
930 935 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945 950 955 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
965 970 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
980 985 990

Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
995 1000 1005

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Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1160                1165                1170

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1175                1180                1185

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1190                1195                1200

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1205                1210                1215
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1220                 1225                 1230

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1235                 1240                 1245

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1250                 1255                 1260

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1265                 1270                 1275

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1280                 1285                 1290

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
```

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    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1730                1735                1740

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1745                1750                1755

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1760                1765                1770

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1775                1780                1785

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1790                1795                1800

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1805                1810                1815

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830
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Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1835                 1840                 1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                 1855                 1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1865                 1870                 1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                 1885                 1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                 1900                 1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                 1915                 1920

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1925                 1930                 1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                 1945                 1950

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                 1960                 1965

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                 1975                 1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala
    1985                 1990                 1995

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2000                 2005                 2010

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                 2020                 2025

Pro Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                 2035                 2040
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Pro Ala Thr Gly His His His His His His
2045 2050

<210> 1384
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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polypeptide

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Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
35 40 45

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
50 55 60

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
65 70 75 80

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
100 105 110

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
115 120 125

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
130 135 140

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145 150 155 160

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
165 170 175

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Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
            180                 185                 190

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
        195                 200                 205

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    210                 215                 220

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
225                 230                 235                 240

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                245                 250                 255

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
            260                 265                 270

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
        275                 280                 285

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    290                 295                 300

Ala Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
305                 310                 315                 320

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
                325                 330                 335

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
            340                 345                 350

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
        355                 360                 365

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

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
385                 390                 395                 400
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Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
                405                 410                 415

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
            420                 425                 430

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
        435                 440                 445

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
    450                 455                 460

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
465                 470                 475                 480

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
                485                 490                 495

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
            500                 505                 510

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

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
    530                 535                 540

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
545                 550                 555                 560

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
                565                 570                 575

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
            580                 585                 590

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
        595                 600                 605

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
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    610                 615                 620

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
625                 630                 635                 640

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
                645                 650                 655

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
            660                 665                 670

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
        675                 680                 685

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
    690                 695                 700

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
705                 710                 715                 720

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
                725                 730                 735

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
            740                 745                 750

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
        755                 760                 765

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
    770                 775                 780

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
785                 790                 795                 800

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
                805                 810                 815

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
            820                 825                 830
```

```
Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
        835                 840                 845

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
    850                 855                 860

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
865                 870                 875                 880

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
                885                 890                 895

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

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
        915                 920                 925

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
    930                 935                 940

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
945                 950                 955                 960

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
                965                 970                 975

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
            980                 985                 990

Asn Arg Gly Met Thr Ala Leu Leu  Lys Val Ser Ser Cys  Asp Lys Asn
        995                 1000                1005

Thr Gly  Asp Tyr Tyr Glu Asp  Ser Tyr Glu Asp Ile  Ser Ala Tyr
    1010                1015                1020

Leu Leu  Ser Lys Asn Asn Ala  Ile Glu Pro Arg Ser  Phe Ser Gln
    1025                1030                1035

Asn Gly  Ala Pro Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1040                1045                1050
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```
Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1055                1060                1065

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1070                1075                1080

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1085                1090                1095

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1100                1105                1110

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1115                1120                1125

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1130                1135                1140

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1145                1150                1155

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1160                1165                1170

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1175                1180                1185

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1190                1195                1200

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1205                1210                1215

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1220                1225                1230

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1235                1240                1245

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1250                1255                1260
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Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1265                1270                1275

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1280                1285                1290

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1295                1300                1305

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1310                1315                1320

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1325                1330                1335

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1340                1345                1350

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1355                1360                1365

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1370                1375                1380

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1385                1390                1395

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1400                1405                1410

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1415                1420                1425

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1430                1435                1440

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1445                1450                1455

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
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    1460                1465                1470

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                1480                1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                1495                1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1505                1510                1515

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1520                1525                1530

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                1540                1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                1555                1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                1570                1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                1585                1590

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                1600                1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                1615                1620

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                1630                1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                1645                1650

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1655                1660                1665
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Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                1675                1680

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                1690                1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                1705                1710

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1715                1720                1725

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                1735                1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                1750                1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                1765                1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                1780                1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                1795                1800

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                1810                1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1820                1825                1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                1840                1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1850                1855                1860

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1865                1870                1875
```

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Gln Asp  Leu Tyr Gly Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1880                 1885                 1890

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1895                 1900                 1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1910                 1915                 1920

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1925                 1930                 1935

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1940                 1945                 1950

Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                 1960                 1965

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1970                 1975                 1980

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1985                 1990                 1995

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2000                 2005                 2010

Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2015                 2020                 2025

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2030                 2035                 2040

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    2045                 2050                 2055

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2060                 2065                 2070

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    2075                 2080                 2085
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Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser
    2090   2095   2100

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
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Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    2120   2125   2130

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    2135   2140   2145

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
    2150   2155   2160

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Ala Ser Ser Glu Gln
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Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His
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His His His His
    2195

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<211> 2197
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1387

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220
```

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
                405                 410                 415

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
            420                 425                 430

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser
        435                 440                 445
```

```
Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
    450                 455                 460

Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
465                 470                 475                 480

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495

Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
            500                 505                 510

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
        515                 520                 525

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540

Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
545                 550                 555                 560

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr
                565                 570                 575

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
            580                 585                 590

Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
        595                 600                 605

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
    610                 615                 620

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
625                 630                 635                 640

Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
                645                 650                 655

Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr
```

660 665 670

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
675 680 685

Gly Ala Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
690 695 700

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
705 710 715 720

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
725 730 735

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
740 745 750

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
755 760 765

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
770 775 780

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
785 790 795 800

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
805 810 815

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
820 825 830

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
835 840 845

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
850 855 860

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
865 870 875 880

```
Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
                885                 890                 895

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

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
        915                 920                 925

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
    930                 935                 940

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
945                 950                 955                 960

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
                965                 970                 975

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
            980                 985                 990

Asn Arg Gly Met Thr Ala Leu Leu  Lys Val Ser Ser Cys  Asp Lys Asn
        995                 1000                1005

Thr Gly  Asp Tyr Tyr Glu Asp  Ser Tyr Glu Asp Ile  Ser Ala Tyr
    1010                1015                1020

Leu Leu  Ser Lys Asn Asn Ala  Ile Glu Pro Arg Ser  Phe Ser Gln
    1025                1030                1035

Asn Gly  Ala Pro Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1040                1045                1050

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1055                1060                1065

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1070                1075                1080

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1085                1090                1095
```

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Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1100                1105                1110

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1115                1120                1125

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1130                1135                1140

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1145                1150                1155

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1160                1165                1170

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ala Ser
    1175                1180                1185

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1190                1195                1200

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1205                1210                1215

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1220                1225                1230

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1235                1240                1245

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1250                1255                1260

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1265                1270                1275

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1280                1285                1290

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1295                1300                1305
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Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1310                1315                1320

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1325                1330                1335

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1340                1345                1350

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1355                1360                1365

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1370                1375                1380

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1385                1390                1395

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1400                1405                1410

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1415                1420                1425

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1430                1435                1440

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1445                1450                1455

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1460                1465                1470

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                1480                1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                1495                1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
```

```
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Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
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Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                1540                1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                1555                1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                1570                1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                1585                1590

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                1600                1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                1615                1620

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                1630                1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                1645                1650

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1655                1660                1665

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                1675                1680

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                1690                1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                1705                1710
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Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
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Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                 1735                 1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                 1750                 1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                 1765                 1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                 1780                 1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                 1795                 1800

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                 1810                 1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1820                 1825                 1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                 1840                 1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1850                 1855                 1860

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1865                 1870                 1875

Gln Asp  Leu Tyr Gly Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1880                 1885                 1890

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1895                 1900                 1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1910                 1915                 1920
```

```
Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1925                1930                1935

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1940                1945                1950

Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                1960                1965

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1970                1975                1980

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1985                1990                1995

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    2000                2005                2010

Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2015                2020                2025

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2030                2035                2040

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    2045                2050                2055

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2060                2065                2070

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    2075                2080                2085

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    2090                2095                2100

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2105                2110                2115

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2120                2125                2130
```

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    2135   2140   2145

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
    2150   2155   2160

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Ala Ser Ser Glu Gln
    2165   2170   2175

Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His
    2180   2185   2190

His His His His
    2195

<210> 1388
<211> 6594
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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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ccaggcacta gtaccgagcc ctctgaaggc agtgcgccag cctcgagcga acaaaaactc 6540

atctcagaag aggatctgtc acctgcaacc ggtcatcatc accatcacca ttga 6594

<210> 1389
<211> 2200
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1389
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

```
Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
```

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Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495
```

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His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
```

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705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925
```

```
Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
            980                 985                 990

Ser Pro Gly Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
        995                 1000                1005

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1010                1015                1020

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1025                1030                1035

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1040                1045                1050

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    1055                1060                1065

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
    1070                1075                1080

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1085                1090                1095

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1100                1105                1110

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    1115                1120                1125

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1130                1135                1140
```

```
Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1145                1150                1155

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1160                1165                1170

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1175                1180                1185

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1190                1195                1200

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1205                1210                1215

Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1220                1225                1230

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    1235                1240                1245

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1250                1255                1260

Ser Gly  Ala Thr Gly Ser Pro  Ala Ser Ser Arg Ala  Gln Ser Gly
    1265                1270                1275

Ser Val  Pro Gln Phe Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp
    1280                1285                1290

Gly Ser  Phe Thr Gln Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His
    1295                1300                1305

Leu Gly  Leu Leu Gly Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn
    1310                1315                1320

Ile Met  Val Thr Phe Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe
    1325                1330                1335

Tyr Ser  Ser Leu Ile Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala
    1340                1345                1350
```

```
Glu Pro  Arg Lys Asn Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr
    1355                1360                1365

Phe Trp  Lys Val Gln His His  Met Ala Pro Thr Lys  Asp Glu Phe
    1370                1375                1380

Asp Cys  Lys Ala Trp Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys
    1385                1390                1395

Asp Val  His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
    1400                1405                1410

Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
    1415                1420                1425

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1430                1435                1440

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    1445                1450                1455

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1460                1465                1470

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1475                1480                1485

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1490                1495                1500

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1505                1510                1515

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1520                1525                1530

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1535                1540                1545

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
```

```
    1550                1555                1560

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1565                1570                1575

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1580                1585                1590

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1595                1600                1605

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1610                1615                1620

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1625                1630                1635

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1640                1645                1650

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1655                1660                1665

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1670                1675                1680

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1685                1690                1695

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1700                1705                1710

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1715                1720                1725

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1730                1735                1740

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1745                1750                1755
```

```
Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1760                1765                1770

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1775                1780                1785

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1790                1795                1800

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1805                1810                1815

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1820                1825                1830

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1835                1840                1845

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1850                1855                1860

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1865                1870                1875

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Gly Thr  Ser Glu Ser
    1880                1885                1890

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1895                1900                1905

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1910                1915                1920

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1925                1930                1935

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
    1940                1945                1950

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1955                1960                1965
```

```
Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1970                1975                1980

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1985                1990                1995

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly
    2000                2005                2010

Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr
    2015                2020                2025

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2030                2035                2040

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2045                2050                2055

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser
    2060                2065                2070

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2075                2080                2085

Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    2090                2095                2100

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    2105                2110                2115

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    2120                2125                2130

Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2135                2140                2145

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2150                2155                2160

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Ala Ser
    2165                2170                2175
```

Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr
    2180   2185   2190

Gly His His His His His His
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<211> 6603
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      polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc   420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct   480

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gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg   720

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catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg   960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat   1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt   1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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tga 6603

<210> 1391
<211> 2197
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1391
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525
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Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Ser Pro Ala Gly
            740                 745                 750
```

```
Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
        755                 760                 765

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    770                 775                 780

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
785                 790                 795                 800

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
                805                 810                 815

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            820                 825                 830

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
        835                 840                 845

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    850                 855                 860

Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
865                 870                 875                 880

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975
```

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Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155


Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1160                1165                1170


Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
```

```
    1175                1180                1185

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1235                1240                1245

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1280                1285                1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1295                1300                1305

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1310                1315                1320

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1325                1330                1335

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
    1340                1345                1350

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1355                1360                1365

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1370                1375                1380
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Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
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Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala
    1400                 1405                 1410

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1415                 1420                 1425

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1430                 1435                 1440

Thr Gly  Ser Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1445                 1450                 1455

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1460                 1465                 1470

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                 1480                 1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                 1495                 1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1505                 1510                 1515

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1520                 1525                 1530

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                 1540                 1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                 1555                 1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                 1570                 1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                 1585                 1590
```

```
Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                 1600                 1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                 1615                 1620

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                 1630                 1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                 1645                 1650

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1655                 1660                 1665

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                 1675                 1680

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                 1690                 1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                 1705                 1710

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1715                 1720                 1725

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                 1735                 1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                 1750                 1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                 1765                 1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                 1780                 1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                 1795                 1800
```

```
Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                 1810                 1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1820                 1825                 1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                 1840                 1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1850                 1855                 1860

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1865                 1870                 1875

Gln Asp  Leu Tyr Gly Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1880                 1885                 1890

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1895                 1900                 1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1910                 1915                 1920

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1925                 1930                 1935

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1940                 1945                 1950

Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1955                 1960                 1965

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1970                 1975                 1980

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1985                 1990                 1995

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
```

2000 2005 2010

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
2015 2020 2025

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
2030 2035 2040

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
2045 2050 2055

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
2060 2065 2070

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
2075 2080 2085

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser
2090 2095 2100

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
2105 2110 2115

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
2120 2125 2130

Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
2135 2140 2145

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
2150 2155 2160

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Ala Ser Ser Glu Gln
2165 2170 2175

Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His
2180 2185 2190

His His His His
2195

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<220>
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polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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<211> 1763
<212> PRT
<213> Artificial Sequence

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Met Gln Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
20 25 30

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
35 40 45

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
50 55 60

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
65 70 75 80

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
85 90 95

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
100 105 110

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
115 120 125

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
130 135 140

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Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
145                 150                 155                 160

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
                165                 170                 175

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
            180                 185                 190

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
        195                 200                 205

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    210                 215                 220

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
225                 230                 235                 240

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                245                 250                 255

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
            260                 265                 270

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
        275                 280                 285

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    290                 295                 300

Ala Thr Gly Ser Pro Ala Ser Ser Ser Asp Leu Gly Glu Leu Pro Val
305                 310                 315                 320

Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
                325                 330                 335

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
            340                 345                 350

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
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        355                 360                 365

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

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
385                 390                 395                 400

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
                405                 410                 415

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
            420                 425                 430

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
        435                 440                 445

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
    450                 455                 460

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
465                 470                 475                 480

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
                485                 490                 495

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
            500                 505                 510

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

Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
    530                 535                 540

Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
545                 550                 555                 560

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
                565                 570                 575
```

```
Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
            580                 585                 590

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
        595                 600                 605

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
    610                 615                 620

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
625                 630                 635                 640

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
                645                 650                 655

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
            660                 665                 670

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
        675                 680                 685

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
    690                 695                 700

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
705                 710                 715                 720

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
                725                 730                 735

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
            740                 745                 750

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
        755                 760                 765

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
    770                 775                 780

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
785                 790                 795                 800
```

```
Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
                805                 810                 815

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
            820                 825                 830

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
        835                 840                 845

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
    850                 855                 860

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
865                 870                 875                 880

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
                885                 890                 895

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

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
        915                 920                 925

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
    930                 935                 940

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
945                 950                 955                 960

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
                965                 970                 975

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
            980                 985                 990

Asn Arg Gly Met Thr Ala Leu Leu  Lys Val Ser Ser Cys  Asp Lys Asn
        995                 1000                1005

Thr Gly  Asp Tyr Tyr Glu Asp  Ser Tyr Glu Asp Ile  Ser Ala Tyr
    1010                1015                1020
```

```
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Asn Pro  Pro Val Leu Lys Arg  His Gln Arg Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
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1220 1225 1230

Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys Asp Val His
1235 1240 1245

Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn Thr Leu
1250 1255 1260

Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala Leu
1265 1270 1275

Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr Glu
1280 1285 1290

Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met Glu
1295 1300 1305

Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn Gly
1310 1315 1320

Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln Asp Gln
1325 1330 1335

Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn Glu Asn Ile
1340 1345 1350

His Ser Ile His Phe Ser Gly His Val Phe Thr Val Arg Lys Lys
1355 1360 1365

Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro Gly Val Phe
1370 1375 1380

Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly Ile Trp Arg Val
1385 1390 1395

Glu Cys Leu Ile Gly Glu His Leu His Ala Gly Met Ser Thr Leu
1400 1405 1410

Phe Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro Leu Gly Met Ala
1415 1420 1425

```
Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

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

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635
```

```
Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Gly  Ser Pro Gly Ala Glu  Thr Ala Glu
    1730                1735                1740

Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser Pro Ala  Thr Gly His
    1745                1750                1755

His His  His His His
    1760
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<210> 1394
<211> 5292
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 1394
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ccaggtacgc ccgggtcggg aacagcgtcc tcaagcccgg gtagctcgac gccgtcagga 120

gccacagggt cgccgggatc gtcgactcca tcaggcgcaa cgggatcgcc tggatcaagc 180

actccatccg gagcgacggg aagcccaggg agctccccgt ccgcatcgac tgggacggga 240

cctggagcaa gccccggtac gtcgtcaaca ggttcgcctg gtgcctcgcc tggcacgtcc 300

agcacgggga gccccggaac gccgggttcc ggaaccgcat cctcctcacc aggtgcctca 360

ccgggcacct catcaacggg atcaccaggg gcttcaccgg gaacgagctc gacgggttca 420

ccgggagcgt ccccggggac ttcgtcgaca ggtagcccag gggcaagccc cggtacatcg 480

tcaacgggtt ccccagggac accggggagc ggtactgcat cgtcctcacc cggttcctcg 540

acacccagcg gagccacggg ttcgcccggt actccggggt ccggaacggc cagcagctca 600

cccggttcct cgacgccatc aggtgccacg ggctcgcctg gaacgccagg ctcgggcact 660

gcgagcagca gccctggatc atcaacgcct agcggagcga ccggctcccc tggatcgtca 720

actccctcgg gcgcgactgg gagcccagga agctcaccgt cggcctcgac gggaacaggg 780

cctggttcga gcccctcagc ttcaacagga acaggtccag gcgcgtcgcc aggtacatca 840

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gacgcaagat ttcctcctag agtgccaaaa tcttttccat tcaacacctc agtcgtgtac 1020

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ccctggatgg gtctgctagg tcctaccatc caggctgagg tttatgatac agtggtcatt 1140

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tcctttatcc aaattcgctc agttgccaag aagcatccta aaacttgggt acattacatt 2040

gctgctgaag aggaggactg ggactatgct cccttagtcc tcgcccccga tgacagaagt 2100

tataaaagtc aatatttgaa caatggccct cagcggattg gtaggaagta caaaaaagtc 2160

cgatttatgg catacacaga tgaaaccttt aagactcgtg aagctattca gcatgaatca 2220

ggaatcttgg gacctttact ttatggggaa gttggagaca cactgttgat tatatttaag 2280

aatcaagcaa gcagaccata taacatctac cctcacggaa tcactgatgt ccgtcctttg 2340

tattcaagga gattaccaaa aggtgtaaaa catttgaagg attttccaat tctgccagga 2400

gaaatattca aatataaatg gacagtgact gtagaagatg ggccaactaa atcagatcct 2460

cggtgcctga cccgctatta ctctagtttc gttaatatgg agagagatct agcttcagga 2520

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atgtcagaca agaggaatgt catcctgttt tctgtatttg atgagaaccg aagctggtac 2640

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gagttccaag cctccaacat catgcacagc atcaatggct atgtttttga tagtttgcag 2760

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acactcaccc tattcccatt ctcaggagaa actgtcttca tgtcgatgga aaacccaggt 2940

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aaggtttcta gttgtgacaa gaacactggt gattattacg aggacagtta tgaagatatt 3060

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gaaatcgatt atgatgatac catatcagtt gaaatgaaga aggaagattt tgacatttat 3240

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gctgcagtgg agaggctctg ggattatggg atgagtagct ccccacatgt tctaagaaac 3360

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ccatatataa gagcagaagt tgaagataat atcatggtaa ctttcagaaa tcaggcctct 3540

cgtccctatt ccttctattc tagccttatt tcttatgagg aagatcagag gcaaggagca 3600

gaacctagaa aaaactttgt caagcctaat gaaaccaaaa cttacttttg gaaagtgcaa 3660

catcatatgg cacccactaa agatgagttt gactgcaaag cctgggctta tttctctgat 3720

gttgacctgg aaaaagatgt gcactcaggc ctgattggac cccttctggt ctgccacact 3780

aacacactga accctgctca tgggagacaa gtgacagtac aggaatttgc tctgtttttc 3840

accatctttg atgagaccaa aagctggtac ttcactgaaa atatggaaag aaactgcagg 3900

gctccctgca atatccagat ggaagatccc acttttaaag agaattatcg cttccatgca 3960

atcaatggct acataatgga tacactacct ggcttagtaa tggctcagga tcaaaggatt 4020

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gccacctggt ctccttcaaa agctcgactt cacctccaag ggaggagtaa tgcctggaga 4860

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aaggtttttc agggaaatca agactccttc acacctgtgg tgaactctct agacccaccg 5100

ttactgactc gctaccttcg aattcacccc cagagttggg tgcaccagat tgccctgagg 5160

atggaggttc tgggctgcga ggcacaggac ctctacggcg ccggatcacc tggggccgaa 5220

acggccgaac aaaaactcat ctcagaagag gatctgtcac ctgcaaccgg tcatcatcac 5280

catcaccatt ga 5292

<210> 1395
<211> 1763
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1395
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

```
His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
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Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400


Ala Pro Asp Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
                405                 410                 415


Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
            420                 425                 430


Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser
        435                 440                 445


Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
    450                 455                 460


Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
465                 470                 475                 480


Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
                485                 490                 495


Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
            500                 505                 510


Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
        515                 520                 525


Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
    530                 535                 540


Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
545                 550                 555                 560


Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr
                565                 570                 575


Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
            580                 585                 590


Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
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595 600 605

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
610 615 620

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
625 630 635 640

Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
645 650 655

Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr
660 665 670

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
675 680 685

Gly Ala Thr Gly Ser Pro Ala Ser Ser Asp Arg Ser Tyr Lys Ser Gln
690 695 700

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
705 710 715 720

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
725 730 735

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
740 745 750

Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
755 760 765

Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
770 775 780

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
785 790 795 800

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
805 810 815

```
Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
            820                 825                 830

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
        835                 840                 845

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
    850                 855                 860

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
865                 870                 875                 880

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
                885                 890                 895

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

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
        915                 920                 925

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
    930                 935                 940

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
945                 950                 955                 960

Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
                965                 970                 975

Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
            980                 985                 990

Asn Arg Gly Met Thr Ala Leu Leu  Lys Val Ser Ser Cys  Asp Lys Asn
        995                 1000                1005

Thr Gly  Asp Tyr Tyr Glu Asp  Ser Tyr Glu Asp Ile  Ser Ala Tyr
    1010                1015                1020

Leu Leu  Ser Lys Asn Asn Ala  Ile Glu Pro Arg Ser  Phe Ser Gln
    1025                1030                1035
```

```
Asn Pro  Pro Val Leu Lys Arg  His Gln Arg Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245
```

```
Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1295                1300                1305

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1310                1315                1320

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                1330                1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                1345                1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                1360                1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1370                1375                1380

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1385                1390                1395

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1400                1405                1410

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1415                1420                1425

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1430                1435                1440

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
```

```
    1445                1450                1455

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1460                1465                1470

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1475                1480                1485

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1490                1495                1500

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1505                1510                1515

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1520                1525                1530

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1550                1555                1560

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1565                1570                1575

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1595                1600                1605

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1610                1615                1620

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1625                1630                1635

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1640                1645                1650
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Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1655                1660                1665

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1670                1675                1680

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1700                1705                1710

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1715                1720                1725

Gln Asp  Leu Tyr Gly Ala Gly  Ser Pro Gly Ala Glu  Thr Ala Glu
    1730                1735                1740

Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser Pro Ala  Thr Gly His
    1745                1750                1755

His His  His His His
    1760
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<210> 1396
<211> 5292
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
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Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
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Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
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Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Gly Ala Pro
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Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
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Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
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Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
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Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
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Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
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Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
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Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
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Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
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Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            980                 985                 990

Pro Ser Gly Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
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Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
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Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
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Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
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Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    1085                1090                1095

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1100                1105                1110

Ser Gly  Ala Thr Gly Ser Pro  Ala Ser Ser Arg Ala  Gln Ser Gly
    1115                1120                1125

Ser Val  Pro Gln Phe Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp
    1130                1135                1140

Gly Ser  Phe Thr Gln Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His
    1145                1150                1155

Leu Gly  Leu Leu Gly Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn
    1160                1165                1170

Ile Met  Val Thr Phe Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe
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Tyr Ser  Ser Leu Ile Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala
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Glu Pro  Arg Lys Asn Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr
    1205                1210                1215

Phe Trp  Lys Val Gln His His  Met Ala Pro Thr Lys  Asp Glu Phe
    1220                1225                1230

Asp Cys  Lys Ala Trp Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys
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Asp Val  His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
    1250                1255                1260
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Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
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Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
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Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
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Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
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Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
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Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
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Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
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Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
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Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
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Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1400                1405                1410

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
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Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
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Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
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Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
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Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
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Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1490                 1495                 1500

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
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Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
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Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1535                 1540                 1545

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1550                 1555                 1560

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1565                 1570                 1575

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
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Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
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Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
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Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
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Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1640                 1645                 1650

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
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Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
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Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
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Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
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Thr Gly His His His His His His
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
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Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
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Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860
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Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
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Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
        995                 1000                1005


Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
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Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
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Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
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Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
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Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1160                1165                1170

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1175                1180                1185

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
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Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
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Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1235                1240                1245

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
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Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
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Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1325                 1330                 1335

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1340                 1345                 1350

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1355                 1360                 1365

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
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Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
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Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
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Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
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Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
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Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
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Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
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Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
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Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
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Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
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Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
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Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1535                1540                1545

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
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Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
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Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1580                1585                1590

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
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Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
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Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
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Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
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Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
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His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
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Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1685                1690                1695
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Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp
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Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala
1715 1720 1725

Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu Thr Ala Glu
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ggacaatatg gacagtgggc cccaaagctg gccagacttc attattccgg atcaatcaat 4380

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ggaaccttaa tggtcttctt tggcaatgtg gattcatctg ggataaaaca caatattttt 4620

aaccctccaa ttattgctcg atacatccgt ttgcacccaa ctcattatag cattcgcagc 4680

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gagagtaaag caatatcaga tgcacagatt actgcttcat cctactttac caatatgttt 4800

gccacctggt ctccttcaaa agctcgactt cacctccaag ggaggagtaa tgcctggaga 4860

cctcaggtga ataatccaaa agagtggctg caagtggact tccagaagac aatgaaagtc 4920

acaggagtaa ctactcaggg agtaaaatct ctgcttacca gcatgtatgt gaaggagttc 4980

ctcatctcca gcagtcaaga tggccatcag tggactctct tttttcagaa tggcaaagta 5040

aaggtttttc agggaaatca agactccttc acacctgtgg tgaactctct agacccaccg 5100

ttactgactc gctaccttcg aattcacccc cagagttggg tgcaccagat tgccctgagg 5160

atggaggttc tgggctgcga ggcacaggac ctctacggcg ccggatcacc tggggccgaa 5220

acggccgaac aaaaactcat ctcagaagag gatctgtcac ctgcaaccgg tcatcatcac 5280

catcaccatt ga 5292

<210> 1401
<211> 1501
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1401
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210   215   220

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
```

```
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
```

```
Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880
```

```
Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095
```

```
Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
```

1295 1300 1305

Trp Ser Pro Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn
1310 1315 1320

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1325 1330 1335

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1340 1345 1350

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1355 1360 1365

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1370 1375 1380

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1385 1390 1395

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1400 1405 1410

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1415 1420 1425

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala Pro Gly Ser
1430 1435 1440

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
1445 1450 1455

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
1460 1465 1470

Ser Glu Thr Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
1475 1480 1485

Asp Leu Ser Pro Ala Thr Gly His His His His His His
1490 1495 1500

<210> 1402
<211> 4506
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 1402
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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tattccggat caatcaatgc ctggagcacc aaggagccct tttcttggat caaggtggat 3540

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cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 3840

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atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 4140

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caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcg 4320

ccaggttctc ctgctggctc ccccacctca acagaagagg ggacaagcga aagcgctacg 4380

cctgagagtg gccctggctc tgagccagcc acctccggct ctgaaacccc tgcctcgagc 4440

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cattga 4506

<210> 1403
<211> 1553

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415
```

```
Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
```

625 630 635 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
645 650 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
660 665 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
675 680 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
690 695 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705 710 715 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
725 730 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
740 745 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
755 760 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
770 775 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785 790 795 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
805 810 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
820 825 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
835 840 845

```
Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Ser
    1040                1045                1050

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1055                1060                1065
```

```
Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1070                1075                1080

Ser Glu  Thr Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1085                1090                1095

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1100                1105                1110

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1115                1120                1125

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1130                1135                1140

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1145                1150                1155

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1160                1165                1170

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1175                1180                1185

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1190                1195                1200

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1205                1210                1215

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1220                1225                1230

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1235                1240                1245

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1250                1255                1260

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1265                1270                1275
```

```
Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1280                1285                1290

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1295                1300                1305

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1310                1315                1320

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1325                1330                1335

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1340                1345                1350

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1355                1360                1365

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1370                1375                1380

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1385                1390                1395

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1400                1405                1410

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1415                1420                1425

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1430                1435                1440

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1445                1450                1455

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1460                1465                1470

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
```

1475 1480 1485

Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp
1490 1495 1500

Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala
1505 1510 1515

Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu Thr Ala Glu
1520 1525 1530

Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His
1535 1540 1545

His His His His His
1550

<210> 1404
<211> 4662
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

gtgcagcttg aggatccaga gttccaagcc tccaacatca tgcacagcat caatggctat 1860

gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

agcattggag cacagactga cttccttttct gtcttcttct ctggatatac cttcaaacac 1980

aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

tcgatggaaa acccaggtct atggattctg gggtgccaca actcagactt tcggaacaga 2100

ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacggcgc gccaggttct cctgctggct cccccacctc aacagaagag 2280

gggacaagcg aaagcgctac gcctgagagt ggccctggct ctgagccagc cacctccggc 2340

tctgaaaccc ctgcctcgag cccaccagtc ttgaaacgcc atcaagctga aataactcgt 2400

actactcttc agtcagatca agaggaaatc gattatgatg ataccatatc agttgaaatg 2460

aagaaggaag attttgacat ttatgatgag gatgaaaatc agagcccccg cagctttcaa 2520

aagaaaacac gacactattt tattgctgca gtggagaggc tctgggatta tgggatgagt 2580

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gttgttttcc aggaatttac tgatggctcc tttactcagc ccttataccg tggagaacta 2700

aatgaacatt tgggactcct ggggccatat ataagagcag aagttgaaga taatatcatg 2760

gtaactttca gaaatcaggc ctctcgtccc tattccttct attctagcct tatttcttat 2820

gaggaagatc agaggcaagg agcagaacct agaaaaaact ttgtcaagcc taatgaaacc 2880

aaaacttact tttggaaagt gcaacatcat atggcaccca ctaaagatga gtttgactgc 2940

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gaaaatatgg aaagaaactg caggggcgcg ccaggttctc ctgctggctc ccccacctca 3180

acagaagagg ggacaagcga aagcgctacg cctgagagtg gccctggctc tgagccagcc 3240

acctccggct ctgaaacccc tgcctcgagc gctccctgca atatccagat ggaagatccc 3300

acttttaaag agaattatcg cttccatgca atcaatggct acataatgga tacactacct 3360

ggcttagtaa tggctcagga tcaaaggatt cgatggtatc tgctcagcat gggcagcaat 3420

gaaaacatcc attctattca tttcagtgga catgtgttca ctgtacgaaa aaaagaggag 3480

tataaaatgg cactgtacaa tctctatcca ggtgtttttg agacagtgga aatgttacca 3540

tccaaagctg gaatttggcg ggtggaatgc cttattggcg agcatctaca tgctgggatg 3600

agcacacttt ttctggtgta cagcaataag tgtcagactc ccctgggaat ggcttctgga 3660

cacattagag attttcagat tacagcttca ggacaatatg gacagtgggc cccaaagctg 3720

gccagacttc attattccgg atcaatcaat gcctggagca ccaaggagcc cttttcttgg 3780

atcaaggtgg atctgttggc accaatgatt attcacggca tcaagaccca gggtgcccgt 3840

cagaagttct ccagcctcta catctctcag tttatcatca tgtatagtct tgatgggaag 3900

aagtggcaga cttatcgagg aaattccact ggaaccttaa tggtcttctt tggcaatgtg 3960

gattcatctg ggataaaaca caatattttt aaccctccaa ttattgctcg atacatccgt 4020

ttgcacccaa ctcattatag cattcgcagc actcttcgca tggagttgat gggctgtgat 4080

ttaaatagtt gcagcatgcc attgggaatg gagagtaaag caatatcaga tgcacagatt 4140

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caagtggact tccagaagac aatgaaagtc acaggagtaa ctactcaggg agtaaaatct 4320

ctgcttacca gcatgtatgt gaaggagttc ctcatctcca gcagtcaaga tggccatcag 4380

tggactctct tttttcagaa tggcaaagta aaggtttttc agggaaatca agactccttc 4440

acacctgtgg tgaactctct agacccaccg ttactgactc gctaccttcg aattcacccc 4500

cagagttggg tgcaccagat tgccctgagg atggaggttc tgggctgcga ggcacaggac 4560

ctctacggcg ccggatcacc tggggccgaa acggccgaac aaaaactcat ctcagaagag 4620

gatctgtcac ctgcaaccgg tcatcatcac catcaccatt ga 4662

<210> 1405
<211> 1661
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1405
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1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525
```

```
Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
```

```
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
945                 950                 955                 960
```

```
Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Thr
    1040                1045                1050

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
    1055                1060                1065

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1070                1075                1080

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1085                1090                1095

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr
    1100                1105                1110

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
    1115                1120                1125

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1130                1135                1140

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1145                1150                1155

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1160                1165                1170
```

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Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Ala Ser Ser Ala Pro  Cys Asn Ile
    1190                1195                1200

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1205                1210                1215

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1220                1225                1230

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1235                1240                1245

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1250                1255                1260

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1265                1270                1275

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1280                1285                1290

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1295                1300                1305

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1310                1315                1320

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1325                1330                1335

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1340                1345                1350

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1355                1360                1365

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1370                1375                1380
```

```
Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1385                1390                1395

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1400                1405                1410

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                1420                1425

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                1435                1440

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                1450                1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                1465                1470

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                1480                1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1490                1495                1500

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1505                1510                1515

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1520                1525                1530

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1535                1540                1545

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1550                1555                1560

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1565                1570                1575

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
```

1580 1585 1590

Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro
1595 1600 1605

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
1610 1615 1620

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu
1625 1630 1635

Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala
1640 1645 1650

Thr Gly His His His His His His
1655 1660

<210> 1406
<211> 4986
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
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```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
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Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
```

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Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
```

```
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910
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Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
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Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Thr
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Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1055                1060                1065

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1070                1075                1080

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
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Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
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Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1190                1195                1200

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1205                1210                1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1220                1225                1230

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1235                1240                1245

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser
    1280                1285                1290

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
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Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Ala  Ser Ser Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
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Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
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Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1370                1375                1380

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1385                1390                1395

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    1400                1405                1410

Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
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Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1430                1435                1440

Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
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Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1460                1465                1470

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
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Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
    1490                1495                1500

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    1505                1510                1515

Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
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Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
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His Asn Ile Phe Asn Pro Pro Ile Ile Ala Arg Tyr Ile Arg Leu
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His Pro Thr His Tyr Ser Ile Arg Ser Thr Leu Arg Met Glu Leu
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Met Gly Cys Asp Leu Asn Ser Cys Ser Met Pro Leu Gly Met Glu
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Gly Val Thr Thr Gln Gly Val Lys Ser Leu Leu Thr Ser Met Tyr
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Val Lys Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln Trp
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Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu
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Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu
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Tyr Gly Ala Gly Ser Pro Gly Ala Glu Thr Ala Glu Gln Lys Leu
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Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His His His
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<211> 1661
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<400> 1409

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205
```

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
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Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
```

```
Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
```

```
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080
```

```
Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1160                1165                1170

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1175                1180                1185

Thr Ser  Gly Ser Glu Thr Pro  Ala Ser Ser Ala Pro  Cys Asn Ile
    1190                1195                1200

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1205                1210                1215

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1220                1225                1230

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1235                1240                1245

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1250                1255                1260

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1265                1270                1275

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1280                1285                1290
```

```
Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
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Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
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Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1325                1330                1335

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1340                1345                1350

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1355                1360                1365

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1370                1375                1380

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1385                1390                1395

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1400                1405                1410

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                1420                1425

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                1435                1440

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                1450                1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                1465                1470

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                1480                1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
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```

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Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
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Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1520                1525                1530

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1535                1540                1545

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1550                1555                1560

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1565                1570                1575

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1580                1585                1590

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1595                1600                1605

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
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Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Gly Ser Pro  Gly Ala Glu
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Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
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Thr Gly  His His His His His  His
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actcgctacc ttcgaattca cccccagagt tgggtgcacc agattgccct gaggatggag 4860

gttctgggct gcgaggcaca ggacctctac ggcgccggat cacctggggc cgaaacggcc 4920

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cattga 4986

<210> 1411
<211> 1769
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1411
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

```
His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
```

```
Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400


Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415


Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430


Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445


Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460


Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480


Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495


His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510


Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525


Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540


Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560


Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575


Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590


Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
```

```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
```

```
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1235                1240                1245
```

```
Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                 1255                 1260

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                 1270                 1275

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1280                 1285                 1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                 1405                 1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                 1420                 1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                 1435                 1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                 1450                 1455
```

```
Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
```

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    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Gly Ser Pro
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly His His  His His His His
    1760                1765
```

<210> 1412
<211> 5310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 1412
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

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gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

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ggctcgtcca caccgtcggg agctacggga agcccaggag cgtcaccggg aacgtcgtca 2340

acggggtcac cgggtacgcc aggtagcggc acggccagca gctcgccagg ttcatcgacc 2400

ccgtcgggag cgactgggtc gcccggatca agcccgtcag cttccactgg aacaggaccc 2460

gggtcgtcgc cgtcagcctc aacggggaca ggacctggtt catcgacgcc gtcaggggcg 2520

acaggctcgc ccggatcgtc aacaccctcg ggggcaacgg ggagccctgg tgcgtcgcct 2580

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cgccatcaag ctgaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

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cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

gcagaagttg aagataatat catggtaact ttcagaaatc aggcctctcg tccctattcc 3120

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cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

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agctcgacac cttccggcgc aacgggatcg cccggagcca gcccgggtac gtcaagcact 3900

ggctcccctg cctcgagcgc tccctgcaat atccagatgg aagatcccac ttttaaagag 3960

aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 4020

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 4080

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atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 4260

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agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 4560

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ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 4680

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 4740

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tactttacca atatgtttgc cacctggtct ccttcaaaag ctcgacttca cctccaaggg 4860

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atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 5040

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aactctctag acccaccgtt actgactcgc taccttcgaa ttcaccccca gagttgggtg 5160

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gcaaccggtc atcatcacca tcaccattga 5310

<210> 1413
<211> 1913
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1413
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu

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            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
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Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750


Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780


Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800


Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815


Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845
```

```
Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
```

```
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1160                1165                1170

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1175                1180                1185

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1235                1240                1245

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260
```

```
Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1280                1285                1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1295                1300                1305

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1310                1315                1320

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1325                1330                1335

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
    1340                1345                1350

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1355                1360                1365

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1370                1375                1380

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1385                1390                1395

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala
    1400                1405                1410

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1415                1420                1425

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1430                1435                1440

Thr Gly  Ser Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1445                1450                1455

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1460                1465                1470
```

```
Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                1480                1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                1495                1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1505                1510                1515

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1520                1525                1530

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                1540                1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                1555                1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                1570                1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                1585                1590

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                1600                1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                1615                1620

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                1630                1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                1645                1650

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1655                1660                1665

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                1675                1680
```

```
Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                1690                1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                1705                1710

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1715                1720                1725

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                1735                1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                1750                1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                1765                1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                1780                1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                1795                1800

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                1810                1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1820                1825                1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                1840                1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1850                1855                1860

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1865                1870                1875

Gln Asp  Leu Tyr Gly Ala Gly  Ser Pro Gly Ala Glu  Thr Ala Glu
```

1880 1885 1890

Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His
1895 1900 1905

His His His His His His
1910

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<211> 5742
<212> DNA
<213> Artificial Sequence

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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<211> 1805
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
```

```
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860
```

```
Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880


Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895


Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910


Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940


Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960


Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990


Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005


Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020


Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035


Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050


Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065


Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080
```

```
Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290
```

```
Asn Met  Glu Arg Asn Cys Arg  Gly Ala Pro Gly Ser  Pro Ala Gly
    1295                1300                1305

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1310                1315                1320

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1325                1330                1335

Pro Ala  Ser Ser Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    1340                1345                1350

Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    1355                1360                1365

Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1370                1375                1380

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1385                1390                1395

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    1400                1405                1410

Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
    1415                1420                1425

Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1430                1435                1440

Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
    1445                1450                1455

Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1460                1465                1470

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
    1475                1480                1485

Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
```

```
    1490                1495                1500

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    1505                1510                1515

Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
    1520                1525                1530

Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    1535                1540                1545

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    1550                1555                1560

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    1565                1570                1575

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    1580                1585                1590

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    1595                1600                1605

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    1610                1615                1620

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    1625                1630                1635

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
    1640                1645                1650

Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
    1655                1660                1665

Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
    1670                1675                1680

Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr
    1685                1690                1695
```

```
Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp
    1700                1705                1710

Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn
    1715                1720                1725

Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser Leu Asp  Pro Pro Leu
    1730                1735                1740

Leu Thr  Arg Tyr Leu Arg Ile  His Pro Gln Ser Trp  Val His Gln
    1745                1750                1755

Ile Ala  Leu Arg Met Glu Val  Leu Gly Cys Glu Ala  Gln Asp Leu
    1760                1765                1770

Tyr Gly  Ala Gly Ser Pro Gly  Ala Glu Thr Ala Glu  Gln Lys Leu
    1775                1780                1785

Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr Gly His  His His His
    1790                1795                1800

His His
    1805
```

<210> 1416
<211> 5418
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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<210> 1417
<211> 1913
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1417
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

```
His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380
```

```
Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400


Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415


Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430


Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445


Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460


Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480


Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495


His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510


Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525


Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540


Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560


Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575


Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590


Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605
```

```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
```

```
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035
```

```
Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245
```

```
Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Gly Ala Pro Gly Thr  Pro Gly Ser
    1295                1300                1305

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1310                1315                1320

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1325                1330                1335

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    1340                1345                1350

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser
    1355                1360                1365

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1370                1375                1380

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1385                1390                1395

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    1400                1405                1410

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1415                1420                1425

Ser Gly  Ala Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1430                1435                1440

Thr Gly  Ser Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1445                1450                1455
```

```
Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1460                1465                1470

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                1480                1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                1495                1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1505                1510                1515

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1520                1525                1530

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                1540                1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                1555                1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                1570                1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                1585                1590

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                1600                1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                1615                1620

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                1630                1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                1645                1650

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
```

```
    1655                1660                1665

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                1675                1680

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                1690                1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                1705                1710

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1715                1720                1725

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                1735                1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                1750                1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                1765                1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                1780                1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                1795                1800

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                1810                1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1820                1825                1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                1840                1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1850                1855                1860
```

Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala
    1865   1870   1875

Gln Asp Leu Tyr Gly Ala Gly Ser Pro Gly Ala Glu Thr Ala Glu
    1880   1885   1890

Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His
    1895   1900   1905

His His His His His
    1910

<210> 1418
<211> 5742
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 1418
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc   420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct   480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga   540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg   720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg   780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac   840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

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gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

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gcgtcgtcgt cacccggttc gtcaacaccc agcggtgcga cgggttcccc gggaaccccc 2400

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gaaatcgatt atgatgatac catatcagtt gaaatgaaga aggaagattt tgacatttat 3240

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ccatatataa gagcagaagt tgaagataat atcatggtaa ctttcagaaa tcaggcctct 3540

cgtccctatt ccttctattc tagccttatt tcttatgagg aagatcagag gcaaggagca 3600

gaacctagaa aaaactttgt caagcctaat gaaaccaaaa cttacttttg gaaagtgcaa 3660

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gattcatctg ggataaaaca caatattttt aaccctccaa ttattgctcg atacatccgt 5100

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caagtggact tccagaagac aatgaaagtc acaggagtaa ctactcaggg agtaaaatct 5400

ctgcttacca gcatgtatgt gaaggagttc ctcatctcca gcagtcaaga tggccatcag 5460

tggactctct tttttcagaa tggcaaagta aaggtttttc agggaaatca agactccttc 5520

acacctgtgg tgaactctct agacccaccg ttactgactc gctaccttcg aattcacccc 5580

cagagttggg tgcaccagat tgccctgagg atggaggttc tgggctgcga ggcacaggac 5640

ctctacggcg ccggatcacc tggggccgaa acggccgaac aaaaactcat ctcagaagag 5700

gatctgtcac ctgcaaccgg tcatcatcac catcaccatt ga 5742

<210> 1419

<211> 2057
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1419
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
```

405 410 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
420 425 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
435 440 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
450 455 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465 470 475 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
485 490 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
500 505 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
515 520 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
530 535 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545 550 555 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
565 570 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
580 585 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
595 600 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
610 615 620

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Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655


Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750


Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765


Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780


Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800


Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815


Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830


Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845
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Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065
```

```
Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
```

1265 1270 1275

Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr Glu
1280 1285 1290

Asn Met Glu Arg Asn Cys Arg Gly Ala Pro Gly Thr Pro Gly Ser
1295 1300 1305

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
1310 1315 1320

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
1325 1330 1335

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
1340 1345 1350

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
1355 1360 1365

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
1370 1375 1380

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1385 1390 1395

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
1400 1405 1410

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
1415 1420 1425

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
1430 1435 1440

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1445 1450 1455

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr
1460 1465 1470

```
Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1475                1480                1485

Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1490                1495                1500

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1505                1510                1515

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1520                1525                1530

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser
    1535                1540                1545

Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1550                1555                1560

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1565                1570                1575

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Ala Ser
    1580                1585                1590

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1595                1600                1605

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1610                1615                1620

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1625                1630                1635

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1640                1645                1650

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1655                1660                1665

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1670                1675                1680
```

```
Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1685                1690                1695

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1700                1705                1710

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1715                1720                1725

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1730                1735                1740

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1745                1750                1755

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1760                1765                1770

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1775                1780                1785

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1790                1795                1800

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1805                1810                1815

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1820                1825                1830

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1835                1840                1845

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1850                1855                1860

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1865                1870                1875

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1880                1885                1890
```

```
Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1895                1900                1905

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1910                1915                1920

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1925                1930                1935

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1940                1945                1950

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1955                1960                1965

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1970                1975                1980

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1985                1990                1995

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2000                2005                2010

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2015                2020                2025

Gly Ser  Pro Gly Ala Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu
    2030                2035                2040

Glu Asp  Leu Ser Pro Ala Thr  Gly His His His His  His His
    2045                2050                2055
```

<210> 1420
<211> 6174
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<210> 1421
<211> 1585
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1421
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
```

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225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445
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Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895
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```
Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Ser
    1040                1045                1050

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1055                1060                1065

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1070                1075                1080

Ser Glu  Thr Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1085                1090                1095

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
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1100 1105 1110

Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln Asp Gln
1115 1120 1125

Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn Glu Asn Ile
1130 1135 1140

His Ser Ile His Phe Ser Gly His Val Phe Thr Val Arg Lys Lys
1145 1150 1155

Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro Gly Val Phe
1160 1165 1170

Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly Ile Trp Arg Val
1175 1180 1185

Glu Cys Leu Ile Gly Glu His Leu His Ala Gly Met Ser Thr Leu
1190 1195 1200

Phe Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro Leu Gly Met Ala
1205 1210 1215

Ser Gly His Ile Arg Asp Phe Gln Ile Thr Ala Ser Gly Gln Tyr
1220 1225 1230

Gly Gln Trp Ala Pro Lys Leu Ala Arg Leu His Tyr Ser Gly Ser
1235 1240 1245

Ile Asn Ala Trp Ser Thr Lys Glu Pro Phe Ser Trp Ile Lys Val
1250 1255 1260

Asp Leu Leu Ala Pro Met Ile Ile His Gly Ile Lys Thr Gln Gly
1265 1270 1275

Ala Arg Gln Lys Phe Ser Ser Leu Tyr Ile Ser Gln Phe Ile Ile
1280 1285 1290

Met Tyr Ser Leu Asp Gly Lys Lys Trp Gln Thr Tyr Arg Gly Asn
1295 1300 1305

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Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1310                1315                1320

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1325                1330                1335

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1340                1345                1350

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1355                1360                1365

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1370                1375                1380

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1385                1390                1395

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1400                1405                1410

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1415                1420                1425

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1430                1435                1440

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1445                1450                1455

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1460                1465                1470

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1475                1480                1485

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1490                1495                1500

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1505                1510                1515
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Gln Asp Leu Tyr Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
    1520   1525   1530

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    1535   1540   1545

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser
    1550   1555   1560

Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr
    1565   1570   1575

Gly His His His His His His
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      polynucleotide

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<211> 1693
<212> PRT
<213> Artificial Sequence

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polypeptide

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
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    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
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Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
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Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
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Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
945                 950                 955                 960
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Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
               965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Thr
    1040                1045                1050

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
    1055                1060                1065

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1070                1075                1080

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1085                1090                1095

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr
    1100                1105                1110

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
    1115                1120                1125

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
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Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
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Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
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    1190                1195                1200

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1205                1210                1215

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1220                1225                1230

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1235                1240                1245

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1250                1255                1260

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1265                1270                1275

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1280                1285                1290

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1295                1300                1305

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1310                1315                1320

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1325                1330                1335

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
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Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1355                1360                1365
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Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
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Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1385                1390                1395

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1400                1405                1410

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                1420                1425

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                1435                1440

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                1450                1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                1465                1470

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                1480                1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1490                1495                1500

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1505                1510                1515

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1520                1525                1530

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1535                1540                1545

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1550                1555                1560

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1565                1570                1575
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Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn
1580 1585 1590

Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro
1595 1600 1605

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
1610 1615 1620

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Pro Gly Ser Pro Ala Gly
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Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
1640 1645 1650

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
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Pro Ala Thr Gly His His His His His His
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
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Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
```

```
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860
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Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
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Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895


Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910


Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925


Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940


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


Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975


Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990


Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005


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


Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035


Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Thr
    1040                1045                1050


Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1055                1060                1065


Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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```
Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala
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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1115                1120                1125

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
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Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1145                1150                1155

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
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Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
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Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
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Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1250                1255                1260

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
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Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser
    1280                1285                1290
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Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
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Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1325                1330                1335

Pro Ala  Ser Ser Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    1340                1345                1350

Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    1355                1360                1365

Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1370                1375                1380

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1385                1390                1395

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
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Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
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Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1430                1435                1440

Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
    1445                1450                1455

Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1460                1465                1470

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
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Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
```

```
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Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
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Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
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Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    1535                1540                1545

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    1550                1555                1560

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    1565                1570                1575

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    1580                1585                1590

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    1595                1600                1605

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    1610                1615                1620

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    1625                1630                1635

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
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Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
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Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
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Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr
    1685                1690                1695
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Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp
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Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn
    1715                1720                1725

Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser Leu Asp  Pro Pro Leu
    1730                1735                1740

Leu Thr  Arg Tyr Leu Arg Ile  His Pro Gln Ser Trp  Val His Gln
    1745                1750                1755

Ile Ala  Leu Arg Met Glu Val  Leu Gly Cys Glu Ala  Gln Asp Leu
    1760                1765                1770

Tyr Gly  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1775                1780                1785

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
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Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Ala Ser  Ser Glu Gln
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Lys Leu  Ile Ser Glu Glu Asp  Leu Ser Pro Ala Thr  Gly His His
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His His  His His
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aaagtcacag gagtaactac tcagggagta aaatctctgc ttaccagcat gtatgtgaag 5100

gagttcctca tctccagcag tcaagatggc catcagtgga ctctcttttt tcagaatggc 5160

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ccaccgttac tgactcgcta ccttcgaatt cacccccaga gttgggtgca ccagattgcc 5280

ctgaggatgg aggttctggg ctgcgaggca caggacctct acggcgcgcc aggttctcct 5340

gctggctccc ccacctcaac agaagagggg acaagcgaaa gcgctacgcc tgagagtggc 5400

cctggctctg agccagccac ctccggctct gaaacccctg cctcgagcga acaaaaactc 5460

atctcagaag aggatctgtc acctgcaacc ggtcatcatc accatcacca ttga 5514

<210> 1427
<211> 1693
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1427
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

```
Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
```

```
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780
```

```
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800


Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815


Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845


Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880


Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005
```

```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1160                1165                1170

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1175                1180                1185

Thr Ser  Gly Ser Glu Thr Pro  Ala Ser Ser Ala Pro  Cys Asn Ile
    1190                1195                1200

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
```

1205 1210 1215

Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala
1220 1225 1230

Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn
1235 1240 1245

Glu Asn Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val
1250 1255 1260

Arg Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro
1265 1270 1275

Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly Ile
1280 1285 1290

Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His Ala Gly Met
1295 1300 1305

Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro Leu
1310 1315 1320

Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile Thr Ala Ser
1325 1330 1335

Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg Leu His Tyr
1340 1345 1350

Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro Phe Ser Trp
1355 1360 1365

Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His Gly Ile Lys
1370 1375 1380

Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr Ile Ser Gln
1385 1390 1395

Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp Gln Thr Tyr
1400 1405 1410

```
Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                 1420                 1425

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                 1435                 1440

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                 1450                 1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                 1465                 1470

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                 1480                 1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1490                 1495                 1500

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1505                 1510                 1515

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1520                 1525                 1530

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1535                 1540                 1545

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1550                 1555                 1560

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1565                 1570                 1575

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1580                 1585                 1590

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1595                 1600                 1605

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1610                 1615                 1620
```

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Pro Gly Ser Pro Ala Gly
1625 1630 1635

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
1640 1645 1650

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
1655 1660 1665

Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
1670 1675 1680

Pro Ala Thr Gly His His His His His His
1685 1690

<210> 1428
<211> 5082
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 1428
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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

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gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

agcattggag cacagactga cttcctttct gtcttcttct ctggatatac cttcaaacac 1980

aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

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ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacggcgc gccaggtaca ccgggcagcg gcacggcttc gtcgtcaccc 2280

ggctcgtcca caccgtcggg agctacggga agcccaggag cgtcaccggg aacgtcgtca 2340

acggggtcac cgggtacgcc aggtagcggc acggccagca gctcgccagg ttcatcgacc 2400

ccgtcgggag cgactgggtc gcccggatca agcccgtcag cttccactgg aacaggaccc 2460

gggtcgtcgc cgtcagcctc aacggggaca ggacctggtt catcgacgcc gtcaggggcg 2520

acaggctcgc ccggatcgtc aacaccctcg ggggcaacgg ggagccctgg tgcgtcgcct 2580

ggaacctcat ccaccggaag cccgggggcc tcgccgggta cgagctccac gggatcgccc 2640

ggagcgtccc ccggaacttc aagcacaggg agccctgcct cgagcccacc agtcttgaaa 2700

cgccatcaag ctgaaataac tcgtactact cttcagtcag atcaagagga aatcgattat 2760

gatgatacca tatcagttga aatgaagaag gaagattttg acatttatga tgaggatgaa 2820

aatcagagcc cccgcagctt tcaaaagaaa acacgacact attttattgc tgcagtggag 2880

aggctctggg attatgggat gagtagctcc ccacatgttc taagaaacag ggctcagagt 2940

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cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

gcagaagttg aagataatat catggtaact ttcagaaatc aggcctctcg tccctattcc 3120

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aactttgtca agcctaatga aaccaaaact tacttttgga aagtgcaaca tcatatggca 3240

cccactaaag atgagtttga ctgcaaagcc tgggcttatt tctctgatgt tgacctggaa 3300

aaagatgtgc actcaggcct gattggaccc cttctggtct gccacactaa cacactgaac 3360

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ttcactgtac gaaaaaaaga ggagtataaa atggcactgt acaatctcta tccaggtgtt 3840

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atcatgtata gtcttgatgg gaagaagtgg cagacttatc gaggaaattc cactggaacc 4260

ttaatggtct tctttggcaa tgtggattca tctgggataa aacacaatat ttttaaccct 4320

ccaattattg ctcgatacat ccgtttgcac ccaactcatt atagcattcg cagcactctt 4380

cgcatggagt tgatgggctg tgatttaaat agttgcagca tgccattggg aatggagagt 4440

aaagcaatat cagatgcaca gattactgct tcatcctact ttaccaatat gtttgccacc 4500

tggtctcctt caaaagctcg acttcacctc caagggagga gtaatgcctg gagacctcag 4560

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tccagcagtc aagatggcca tcagtggact ctctttttc agaatggcaa agtaaaggtt 4740

tttcagggaa atcaagactc cttcacacct gtggtgaact ctctagaccc accgttactg 4800

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gttctgggct gcgaggcaca ggacctctac ggcgcgccag gttctcctgc tggctccccc 4920

acctcaacag aagaggggac aagcgaaagc gctacgcctg agagtggccc tggctctgag 4980

ccagccacct ccggctctga aacccctgcc tcgagcgaac aaaaactcat ctcagaagag 5040

gatctgtcac ctgcaaccgg tcatcatcac catcaccatt ga 5082

<210> 1429
<211> 1801
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1429
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

```
Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
```

```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
```

```
Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
```

```
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910
```

```
Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125
```

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1235                1240                1245

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1280                1285                1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
```

```
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Ser
    1730                1735                1740
```

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
    1745   1750   1755

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    1760   1765   1770

Ser Glu Thr Pro Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu
    1775   1780   1785

Asp Leu Ser Pro Ala Thr Gly His His His His His His
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<211> 5406
<212> DNA
<213> Artificial Sequence

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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

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gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

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catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

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<211> 1945
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1431
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            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220
```

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445
```

```
Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
```

```
               885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095
```

```
Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1160                1165                1170

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1175                1180                1185

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1235                1240                1245

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1280                1285                1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1295                1300                1305
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```
Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1310                 1315                 1320

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1325                 1330                 1335

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
    1340                 1345                 1350

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1355                 1360                 1365

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1370                 1375                 1380

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1385                 1390                 1395

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala
    1400                 1405                 1410

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1415                 1420                 1425

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1430                 1435                 1440

Thr Gly  Ser Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1445                 1450                 1455

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1460                 1465                 1470

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                 1480                 1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                 1495                 1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1505                 1510                 1515
```

```
Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1520                1525                1530

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                1540                1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                1555                1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                1570                1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                1585                1590

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                1600                1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                1615                1620

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                1630                1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                1645                1650

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1655                1660                1665

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                1675                1680

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                1690                1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                1705                1710

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
```

```
    1715                1720                1725

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                1735                1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                1750                1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                1765                1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                1780                1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                1795                1800

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                1810                1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1820                1825                1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                1840                1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1850                1855                1860

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1865                1870                1875

Gln Asp  Leu Tyr Gly Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1880                1885                1890

Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Ala Ser
    1910                1915                1920
```

Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr
    1925   1930   1935

Gly His His His His His His
    1940   1945

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<211> 5838
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<213> Artificial Sequence

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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc   420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct   480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga   540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg   720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg   780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac   840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg   960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat   1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt   1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa   1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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<211> 1837
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1433
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
```

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            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
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Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860
```

```
Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880


Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895


Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910


Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940


Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960


Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990


Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005


Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020


Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035


Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050


Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065


Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080
```

```
Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
```

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    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Gly Ala Pro Gly Ser  Pro Ala Gly
    1295                1300                1305

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1310                1315                1320

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1325                1330                1335

Pro Ala  Ser Ser Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    1340                1345                1350

Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    1355                1360                1365

Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1370                1375                1380

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1385                1390                1395

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    1400                1405                1410

Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
    1415                1420                1425

Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1430                1435                1440

Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
    1445                1450                1455

Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1460                1465                1470

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
    1475                1480                1485
```

```
Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
    1490                1495                1500

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    1505                1510                1515

Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
    1520                1525                1530

Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    1535                1540                1545

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    1550                1555                1560

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    1565                1570                1575

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    1580                1585                1590

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    1595                1600                1605

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    1610                1615                1620

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    1625                1630                1635

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
    1640                1645                1650

Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
    1655                1660                1665

Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
    1670                1675                1680

Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr
    1685                1690                1695
```

```
Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp
    1700                1705                1710

Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn
    1715                1720                1725

Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser Leu Asp  Pro Pro Leu
    1730                1735                1740

Leu Thr  Arg Tyr Leu Arg Ile  His Pro Gln Ser Trp  Val His Gln
    1745                1750                1755

Ile Ala  Leu Arg Met Glu Val  Leu Gly Cys Glu Ala  Gln Asp Leu
    1760                1765                1770

Tyr Gly  Ala Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1775                1780                1785

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1790                1795                1800

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Ala Ser  Ser Glu Gln
    1805                1810                1815

Lys Leu  Ile Ser Glu Glu Asp  Leu Ser Pro Ala Thr  Gly His His
    1820                1825                1830

His His  His His
    1835
```

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<211> 5514
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

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gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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<210> 1435
<211> 1945
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val

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        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
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Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
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```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780
```

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Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800


Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815


Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830


Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845


Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860


Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880


Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895


Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910


Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940


Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960


Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990


Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
```

995 1000 1005

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
1010 1015 1020

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Ala Ser
1025 1030 1035

Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr
1040 1045 1050

Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
1055 1060 1065

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp
1070 1075 1080

Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr
1085 1090 1095

Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser
1100 1105 1110

Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro
1115 1120 1125

Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe
1130 1135 1140

Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
1145 1150 1155

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val
1160 1165 1170

Thr Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser
1175 1180 1185

Leu Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg
1190 1195 1200

```
Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                 1210                 1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                 1225                 1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                 1240                 1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                 1255                 1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                 1270                 1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                 1285                 1290

Asn Met  Glu Arg Asn Cys Arg  Gly Ala Pro Gly Thr  Pro Gly Ser
    1295                 1300                 1305

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1310                 1315                 1320

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1325                 1330                 1335

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    1340                 1345                 1350

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser
    1355                 1360                 1365

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1370                 1375                 1380

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1385                 1390                 1395

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    1400                 1405                 1410
```

```
Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1415                 1420                 1425

Ser Gly  Ala Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1430                 1435                 1440

Thr Gly  Ser Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1445                 1450                 1455

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1460                 1465                 1470

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                 1480                 1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                 1495                 1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1505                 1510                 1515

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1520                 1525                 1530

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                 1540                 1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                 1555                 1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                 1570                 1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                 1585                 1590

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                 1600                 1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                 1615                 1620
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Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                1630                1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                1645                1650

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1655                1660                1665

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                1675                1680

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                1690                1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                1705                1710

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1715                1720                1725

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                1735                1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                1750                1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                1765                1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                1780                1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                1795                1800

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                1810                1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
```

```
    1820                1825                1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                1840                1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1850                1855                1860

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1865                1870                1875

Gln Asp  Leu Tyr Gly Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1880                1885                1890

Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Ala Ser
    1910                1915                1920

Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
    1925                1930                1935

Gly His  His His His His His
    1940                1945
```

<210> 1436
<211> 5838
<212> DNA
<213> Artificial Sequence

<220>
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polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

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cgtccctatt ccttctattc tagccttatt tcttatgagg aagatcagag gcaaggagca 3600

gaacctagaa aaaactttgt caagcctaat gaaaccaaaa cttacttttg gaaagtgcaa 3660

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<211> 2089
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
```

```
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750
```

```
Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975
```

```
Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185
```

```
Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                 1195                 1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                 1210                 1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                 1225                 1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                 1240                 1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                 1255                 1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                 1270                 1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                 1285                 1290

Asn Met  Glu Arg Asn Cys Arg  Gly Ala Pro Gly Thr  Pro Gly Ser
    1295                 1300                 1305

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1310                 1315                 1320

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1325                 1330                 1335

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1340                 1345                 1350

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1355                 1360                 1365

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1370                 1375                 1380

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
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1385 1390 1395

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
1400 1405 1410

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
1415 1420 1425

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
1430 1435 1440

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1445 1450 1455

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr
1460 1465 1470

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
1475 1480 1485

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
1490 1495 1500

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
1505 1510 1515

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
1520 1525 1530

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser
1535 1540 1545

Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
1550 1555 1560

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1565 1570 1575

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Ala Ser
1580 1585 1590

```
Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1595                1600                1605

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1610                1615                1620

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1625                1630                1635

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1640                1645                1650

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1655                1660                1665

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1670                1675                1680

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1685                1690                1695

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1700                1705                1710

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1715                1720                1725

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1730                1735                1740

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1745                1750                1755

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1760                1765                1770

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1775                1780                1785

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1790                1795                1800
```

```
Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1805                1810                1815

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1820                1825                1830

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1835                1840                1845

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1850                1855                1860

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1865                1870                1875

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1880                1885                1890

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1895                1900                1905

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1910                1915                1920

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1925                1930                1935

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1940                1945                1950

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1955                1960                1965

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1970                1975                1980

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1985                1990                1995

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2000                2005                2010
```

Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
    2015   2020   2025

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
    2030   2035   2040

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
    2045   2050   2055

Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Glu Gln Lys Leu Ile
    2060   2065   2070

Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His His His His
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His

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<211> 6270
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<213> Artificial Sequence

<220>
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      polynucleotide

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

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gaggggacaa gcgaaagcgc tacgcctgag agtggccctg gctctgagcc agccacctcc 6180

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polypeptide

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
```

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    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
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```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
945                 950                 955                 960
```

```
Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
               965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Ser
    1040                1045                1050

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1055                1060                1065

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1070                1075                1080

Ser Glu  Thr Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1085                1090                1095

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1100                1105                1110

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1115                1120                1125

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1130                1135                1140

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1145                1150                1155

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
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Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1175                1180                1185

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1190                1195                1200

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1205                1210                1215

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1220                1225                1230

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1235                1240                1245

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1250                1255                1260

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1265                1270                1275

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1280                1285                1290

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1295                1300                1305

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1310                1315                1320

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1325                1330                1335

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1340                1345                1350

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1355                1360                1365
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Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1370                1375                1380

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1385                1390                1395

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1400                1405                1410

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1415                1420                1425

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1430                1435                1440

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1445                1450                1455

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1460                1465                1470

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1475                1480                1485

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1490                1495                1500

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1505                1510                1515

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ser Ser Pro  Ser Ala Ser
    1520                1525                1530

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1535                1540                1545

Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1550                1555                1560

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1565                1570                1575
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Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
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Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
    1595   1600   1605

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    1610   1615   1620

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    1625   1630   1635

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
    1640   1645   1650

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
    1655   1660   1665

Ser Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
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Pro Ala Thr Gly His His His His His His
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gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

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ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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<211> 1801
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
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Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
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                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860
```

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Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
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Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895


Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910


Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925


Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940


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


Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975


Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990


Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005


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


Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035


Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Thr
    1040                1045                1050


Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
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Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
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Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1085                1090                1095

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr
    1100                1105                1110

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
    1115                1120                1125

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1130                1135                1140

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1145                1150                1155

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1160                1165                1170

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Ala Ser Ser Ala Pro  Cys Asn Ile
    1190                1195                1200

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1205                1210                1215

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1220                1225                1230

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1235                1240                1245

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1250                1255                1260

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1265                1270                1275

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1280                1285                1290
```

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Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
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Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1310                1315                1320

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1325                1330                1335

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1340                1345                1350

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1355                1360                1365

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
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Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1385                1390                1395

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1400                1405                1410

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                1420                1425

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                1435                1440

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                1450                1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                1465                1470

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                1480                1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
```

1490 1495 1500

Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp Arg
1505 1510 1515

Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val Asp Phe Gln
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Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser
1535 1540 1545

Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser
1550 1555 1560

Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val
1565 1570 1575

Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn
1580 1585 1590

Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro
1595 1600 1605

Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly
1610 1615 1620

Cys Glu Ala Gln Asp Leu Tyr Gly Ala Pro Pro Gly Ser Ser Pro
1625 1630 1635

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
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Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
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Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
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Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
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Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
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Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
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Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
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Asp Leu Ser Pro Ala Thr Gly His His His His His His
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<211> 1945
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

```
Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
```

```
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Thr
    1040                1045                1050
```

```
Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1055                1060                1065

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1070                1075                1080

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1085                1090                1095

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala
    1100                1105                1110

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1115                1120                1125

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1130                1135                1140

Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1145                1150                1155

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1190                1195                1200

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1205                1210                1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1220                1225                1230

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1235                1240                1245

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1250                1255                1260
```

```
Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser
    1280                1285                1290

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1295                1300                1305

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1310                1315                1320

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1325                1330                1335

Pro Ala  Ser Ser Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    1340                1345                1350

Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    1355                1360                1365

Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1370                1375                1380

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1385                1390                1395

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    1400                1405                1410

Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
    1415                1420                1425

Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1430                1435                1440

Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
    1445                1450                1455

Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1460                1465                1470
```

```
Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
    1475                 1480                 1485

Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
    1490                 1495                 1500

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    1505                 1510                 1515

Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
    1520                 1525                 1530

Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    1535                 1540                 1545

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    1550                 1555                 1560

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    1565                 1570                 1575

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    1580                 1585                 1590

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    1595                 1600                 1605

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    1610                 1615                 1620

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    1625                 1630                 1635

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
    1640                 1645                 1650

Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
    1655                 1660                 1665

Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
```

1670 1675 1680

Gly Val Thr Thr Gln Gly Val Lys Ser Leu Leu Thr Ser Met Tyr
1685 1690 1695

Val Lys Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln Trp
1700 1705 1710

Thr Leu Phe Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn
1715 1720 1725

Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu
1730 1735 1740

Leu Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln
1745 1750 1755

Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu
1760 1765 1770

Tyr Gly Ala Pro Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
1775 1780 1785

Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
1790 1795 1800

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1805 1810 1815

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
1820 1825 1830

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
1835 1840 1845

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
1850 1855 1860

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
1865 1870 1875

```
Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1880                1885                1890

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1895                1900                1905

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Ala Ser
    1910                1915                1920

Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
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Gly His  His His His His His
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<213> Artificial Sequence

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atgattattc acggcatcaa gacccagggt gcccgtcaga agttctccag cctctacatc 4620

tctcagttta tcatcatgta tagtcttgat gggaagaagt ggcagactta tcgaggaaat 4680

tccactggaa ccttaatggt cttctttggc aatgtggatt catctgggat aaaacacaat 4740

atttttaacc ctccaattat tgctcgatac atccgtttgc acccaactca ttatagcatt 4800

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gagttcctca tctccagcag tcaagatggc catcagtgga ctctcttttt tcagaatggc 5160

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ccaccgttac tgactcgcta ccttcgaatt caccccccaga gttgggtgca ccagattgcc 5280

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ggacccggga cacccggttc ggggactgca tcctcctcgc ctggttcgtc caccccgtca 5460

ggagccacgg gttcgccggg aagcagccca agcgcatcca ctggtacagg gcctggggct 5520

tcaccgggta cttcatccac ggggtcaccg ggaacgcccg gatcggggac ggcttcctca 5580

tcaccaggat cgtcaacacc ctcgggcgca acgggcagcc ccggaacccc tggttcgggt 5640

acggcgtcgt cgagccccgg tgcgagcccg ggaacaagct cgacaggatc gcctggggcg 5700

tcacccggca cgtcgagcac aggcagcccc ggaacccctg gatcgggaac cgcgtcgtca 5760

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<210> 1445
<211> 1801
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1445
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
```

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    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
```

```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815
```

```
Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1160                1165                1170

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1175                1180                1185

Thr Ser  Gly Ser Glu Thr Pro  Ala Ser Ser Ala Pro  Cys Asn Ile
    1190                1195                1200

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1205                1210                1215

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1220                1225                1230

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
```

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    1235                1240                1245

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1250                1255                1260

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1265                1270                1275

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1280                1285                1290

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1295                1300                1305

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1310                1315                1320

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1325                1330                1335

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1340                1345                1350

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1355                1360                1365

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1370                1375                1380

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1385                1390                1395

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1400                1405                1410

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                1420                1425

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                1435                1440
```

```
Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                1450                1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                1465                1470

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                1480                1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1490                1495                1500

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1505                1510                1515

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1520                1525                1530

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1535                1540                1545

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1550                1555                1560

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1565                1570                1575

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1580                1585                1590

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1595                1600                1605

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1610                1615                1620

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Pro Gly  Ser Ser Pro
    1625                1630                1635

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    1640                1645                1650
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```
Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1655                 1660                 1665


Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1670                 1675                 1680


Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1685                 1690                 1695


Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1700                 1705                 1710


Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1715                 1720                 1725


Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1730                 1735                 1740


Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1745                 1750                 1755


Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1760                 1765                 1770


Ala Ser  Ser Ser Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
    1775                 1780                 1785


Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
    1790                 1795                 1800
```

<210> 1446
<211> 5406
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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tcaacaccct cgggcgcaac gggcagcccc ggaacccctg gttcgggtac ggcgtcgtcg 5220

agccccggtg cgagcccggg aacaagctcg acaggatcgc ctggggcgtc acccggcacg 5280

tcgagcacag gcagccccgg aacccctgga tcgggaaccg cgtcgtcaag cgcctcgagc 5340

gaacaaaaac tcatctcaga agaggatctg tcacctgcaa ccggtcatca tcaccatcac 5400

cattga 5406

<210> 1447
<211> 1909
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1447
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

```
Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
```

```
Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
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Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
```

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                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780
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Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800


Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815


Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845


Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880


Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895


Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910


Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925


Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940


Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960


Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975


Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990


Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005
```

```
Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215
```

```
Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1235                1240                1245

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1280                1285                1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1295                1300                1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                1315                1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                1330                1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                1345                1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                1360                1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                1375                1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                1390                1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1400                1405                1410

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
```

```
    1415                1420                1425

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1430                1435                1440

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1445                1450                1455

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1460                1465                1470

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1475                1480                1485

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1490                1495                1500

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1505                1510                1515

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1520                1525                1530

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1535                1540                1545

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1550                1555                1560

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1565                1570                1575

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1580                1585                1590

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1595                1600                1605

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                1615                1620
```

```
Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                1630                1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                1645                1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                1660                1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                1675                1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                1690                1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                1705                1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                1720                1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Pro Gly
    1730                1735                1740

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1745                1750                1755

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr
    1760                1765                1770

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1775                1780                1785

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1790                1795                1800

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly
    1805                1810                1815

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1820                1825                1830
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Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
    1835   1840   1845

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
    1850   1855   1860

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
    1865   1870   1875

Ser Gly Thr Ala Ser Ser Ser Ala Ser Ser Glu Gln Lys Leu Ile
    1880   1885   1890

Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His His His His
    1895   1900   1905

His

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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

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gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

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<213> Artificial Sequence

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser

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145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365
```

```
Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
```

```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815
```

```
Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
```

```
    1025                1030                1035

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1160                1165                1170

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1175                1180                1185

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1220                1225                1230
```

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Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1235                1240                1245

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1280                1285                1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1295                1300                1305

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1310                1315                1320

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1325                1330                1335

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
    1340                1345                1350

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1355                1360                1365

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1370                1375                1380

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1385                1390                1395

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala
    1400                1405                1410

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1415                1420                1425

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1430                1435                1440
```

```
Thr Gly  Ser Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1445                1450                1455

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1460                1465                1470

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                1480                1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                1495                1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1505                1510                1515

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1520                1525                1530

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                1540                1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                1555                1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                1570                1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                1585                1590

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                1600                1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                1615                1620

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                1630                1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                1645                1650
```

```
Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1655                 1660                 1665

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                 1675                 1680

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                 1690                 1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                 1705                 1710

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1715                 1720                 1725

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                 1735                 1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                 1750                 1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                 1765                 1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                 1780                 1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                 1795                 1800

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                 1810                 1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1820                 1825                 1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                 1840                 1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
```

```
    1850                1855                1860

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1865                1870                1875

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ser Ser Pro  Ser Ala Ser
    1880                1885                1890

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1895                1900                1905

Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1910                1915                1920

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1925                1930                1935

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1940                1945                1950

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1955                1960                1965

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1970                1975                1980

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro
    1985                1990                1995

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2000                2005                2010

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    2015                2020                2025

Ser Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                2035                2040

Pro Ala  Thr Gly His His His  His His His
    2045                2050
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<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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<211> 1945
<212> PRT

<213> Artificial Sequence

<220>
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polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415
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Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
```

```
Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
```

```
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065
```

```
Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275
```

```
Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Gly Ala Pro Gly Ser  Pro Ala Gly
    1295                1300                1305

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1310                1315                1320

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1325                1330                1335

Pro Ala  Ser Ser Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    1340                1345                1350

Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    1355                1360                1365

Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1370                1375                1380

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1385                1390                1395

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    1400                1405                1410

Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
    1415                1420                1425

Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1430                1435                1440

Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
    1445                1450                1455

Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1460                1465                1470

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
    1475                1480                1485
```

```
Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
    1490                1495                1500

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    1505                1510                1515

Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
    1520                1525                1530

Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    1535                1540                1545

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    1550                1555                1560

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    1565                1570                1575

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    1580                1585                1590

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    1595                1600                1605

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    1610                1615                1620

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    1625                1630                1635

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
    1640                1645                1650

Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
    1655                1660                1665

Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
    1670                1675                1680

Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr
```

```
    1685                1690                1695

Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp
    1700                1705                1710

Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn
    1715                1720                1725

Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser Leu Asp  Pro Pro Leu
    1730                1735                1740

Leu Thr  Arg Tyr Leu Arg Ile  His Pro Gln Ser Trp  Val His Gln
    1745                1750                1755

Ile Ala  Leu Arg Met Glu Val  Leu Gly Cys Glu Ala  Gln Asp Leu
    1760                1765                1770

Tyr Gly  Ala Pro Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1775                1780                1785

Gly Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1790                1795                1800

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1805                1810                1815

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    1820                1825                1830

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1835                1840                1845

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1850                1855                1860

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1865                1870                1875

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1880                1885                1890
```

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
    1895   1900   1905

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Ala Ser
    1910   1915   1920

Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr
    1925   1930   1935

Gly His His His His His His
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      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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<212> PRT
<213> Artificial Sequence

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

```
Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
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385 390 395 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
405 410 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
420 425 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
435 440 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
450 455 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465 470 475 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
485 490 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
500 505 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
515 520 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
530 535 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545 550 555 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
565 570 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
580 585 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
595 600 605

```
Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830
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```
Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050
```

```
Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
```

1250 1255 1260

Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala Leu
1265 1270 1275

Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr Glu
1280 1285 1290

Asn Met Glu Arg Asn Cys Arg Gly Ala Pro Gly Thr Pro Gly Ser
1295 1300 1305

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
1310 1315 1320

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
1325 1330 1335

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser
1340 1345 1350

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser
1355 1360 1365

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
1370 1375 1380

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
1385 1390 1395

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser
1400 1405 1410

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
1415 1420 1425

Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
1430 1435 1440

Thr Gly Ser Pro Ala Ser Ser Ala Pro Cys Asn Ile Gln Met Glu
1445 1450 1455

```
Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1460                1465                1470

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                1480                1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                1495                1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1505                1510                1515

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1520                1525                1530

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                1540                1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                1555                1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                1570                1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                1585                1590

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                1600                1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                1615                1620

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                1630                1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                1645                1650

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1655                1660                1665
```

```
Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                1675                1680

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                1690                1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                1705                1710

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1715                1720                1725

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                1735                1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                1750                1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                1765                1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                1780                1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                1795                1800

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                1810                1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1820                1825                1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                1840                1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1850                1855                1860

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1865                1870                1875
```

```
Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ser Ser Pro  Ser Ala Ser
    1880                 1885                 1890

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1895                 1900                 1905

Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1910                 1915                 1920

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1925                 1930                 1935

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1940                 1945                 1950

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1955                 1960                 1965

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1970                 1975                 1980

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro
    1985                 1990                 1995

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2000                 2005                 2010

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    2015                 2020                 2025

Ser Ala  Ser Ser Glu Gln Lys  Leu Ile Ser Glu Glu  Asp Leu Ser
    2030                 2035                 2040

Pro Ala  Thr Gly His His His  His His His
    2045                 2050
```

<210> 1454
<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

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acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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<211> 2197
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser

```
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

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Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
```

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Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880
```

```
Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
```

```
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290
```

```
Asn Met  Glu Arg Asn Cys Arg  Gly Ala Pro Gly Thr  Pro Gly Ser
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Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1310                1315                1320

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1325                1330                1335

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1340                1345                1350

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1355                1360                1365

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1370                1375                1380

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1385                1390                1395

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1400                1405                1410

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1415                1420                1425

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1430                1435                1440

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1445                1450                1455

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
    1460                1465                1470

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1475                1480                1485

Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1490                1495                1500
```

```
Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1505                1510                1515

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1520                1525                1530

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser
    1535                1540                1545

Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1550                1555                1560

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1565                1570                1575

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Ala Ser
    1580                1585                1590

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1595                1600                1605

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1610                1615                1620

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1625                1630                1635

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1640                1645                1650

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1655                1660                1665

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1670                1675                1680

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1685                1690                1695

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1700                1705                1710
```

```
Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1715                1720                1725

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1730                1735                1740

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1745                1750                1755

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1760                1765                1770

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1775                1780                1785

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1790                1795                1800

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1805                1810                1815

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1820                1825                1830

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1835                1840                1845

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1850                1855                1860

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1865                1870                1875

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1880                1885                1890

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1895                1900                1905

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
```

```
    1910                1915                1920

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1925                1930                1935

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1940                1945                1950

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1955                1960                1965

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1970                1975                1980

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1985                1990                1995

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    2000                2005                2010

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Ala
    2015                2020                2025

Pro Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    2030                2035                2040

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
    2045                2050                2055

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    2060                2065                2070

Ala Thr  Gly Ser Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    2075                2080                2085

Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2090                2095                2100

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    2105                2110                2115
```

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
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Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
    2135   2140   2145

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
    2150   2155   2160

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Ala Ser Ser Glu Gln
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Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His
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His His His His
    2195

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

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Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
```

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        275                 280                 285

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    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
```

```
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                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700
```

```
Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750


Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765


Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780


Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800


Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815


Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830


Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845


Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860


Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880


Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895


Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910


Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925
```

```
Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Ser
    1040                1045                1050

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1055                1060                1065

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1070                1075                1080

Ser Glu  Thr Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1085                1090                1095

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1100                1105                1110

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1115                1120                1125

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
```

```
    1130                1135                1140

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1145                1150                1155

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1160                1165                1170

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1175                1180                1185

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1190                1195                1200

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1205                1210                1215

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1220                1225                1230

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1235                1240                1245

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1250                1255                1260

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1265                1270                1275

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1280                1285                1290

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1295                1300                1305

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1310                1315                1320

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1325                1330                1335
```

```
Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1340                1345                1350

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1355                1360                1365

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1370                1375                1380

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1385                1390                1395

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1400                1405                1410

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1415                1420                1425

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1430                1435                1440

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1445                1450                1455

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1460                1465                1470

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1475                1480                1485

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1490                1495                1500

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1505                1510                1515

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ala Ser Pro  Gly Thr Ser
    1520                1525                1530

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1535                1540                1545
```

```
Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1550                1555                1560

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1565                1570                1575

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1580                1585                1590

Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1595                1600                1605

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1610                1615                1620

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1625                1630                1635

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    1640                1645                1650

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1655                1660                1665

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1670                1675                1680

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1685                1690                1695

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    1700                1705                1710

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1715                1720                1725

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1730                1735                1740

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1745                1750                1755
```

```
Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1760                1765                1770


Ser Thr  Gly Ser Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1775                1780                1785


Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1790                1795                1800


Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Ala Ser  Ser Glu Gln
    1805                1810                1815


Lys Leu  Ile Ser Glu Glu Asp  Leu Ser Pro Ala Thr  Gly His His
    1820                1825                1830


His His  His His
    1835
```

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<211> 5514
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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tcaacgggaa ccggaccggg cagctccccc tcagcgtcga cagggacagg ccctggcgcg 5160

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atctcagaag aggatctgtc acctgcaacc ggtcatcatc accatcacca ttga 5514

<210> 1459
<211> 1945
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1459
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

```
Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
```

```
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Thr
    1040                1045                1050
```

```
Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
    1055                1060                1065

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1070                1075                1080

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1085                1090                1095

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr
    1100                1105                1110

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
    1115                1120                1125

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1130                1135                1140

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1145                1150                1155

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1160                1165                1170

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Ala Ser Ser Ala Pro  Cys Asn Ile
    1190                1195                1200

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1205                1210                1215

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1220                1225                1230

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1235                1240                1245

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1250                1255                1260
```

```
Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1265                 1270                 1275

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1280                 1285                 1290

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1295                 1300                 1305

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1310                 1315                 1320

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1325                 1330                 1335

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1340                 1345                 1350

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1355                 1360                 1365

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1370                 1375                 1380

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1385                 1390                 1395

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1400                 1405                 1410

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                 1420                 1425

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                 1435                 1440

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                 1450                 1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                 1465                 1470
```

```
Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                1480                1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1490                1495                1500

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1505                1510                1515

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1520                1525                1530

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1535                1540                1545

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1550                1555                1560

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1565                1570                1575

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1580                1585                1590

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1595                1600                1605

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1610                1615                1620

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Pro Gly  Ala Ser Pro
    1625                1630                1635

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1640                1645                1650

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1655                1660                1665

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
```

```
    1670                1675                1680

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1685                1690                1695

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1700                1705                1710

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1715                1720                1725

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1730                1735                1740

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1745                1750                1755

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1760                1765                1770

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1775                1780                1785

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1790                1795                1800

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1805                1810                1815

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1820                1825                1830

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1835                1840                1845

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1850                1855                1860

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1865                1870                1875
```

```
Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    1880                1885                1890

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1895                1900                1905

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1910                1915                1920

Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
    1925                1930                1935

Gly His  His His His His His
    1940                1945
```

<210> 1460
<211> 5838
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

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<211> 2089
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

```
His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
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    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
```

```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Ser Pro Ala
            740                 745                 750

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        755                 760                 765

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    770                 775                 780

Ala Ser Ser Pro Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg
785                 790                 795                 800

Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
                805                 810                 815
```

```
Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
            820                 825                 830

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
        835                 840                 845

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
    850                 855                 860

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
865                 870                 875                 880

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
                885                 890                 895

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
            900                 905                 910

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
        915                 920                 925

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
    930                 935                 940

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

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
                965                 970                 975

Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu
            980                 985                 990

Lys Asp Val His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
        995                 1000                1005

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

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    1025                1030                1035
```

```
Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Gly Ala  Pro Gly Thr
    1040                1045                1050

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1055                1060                1065

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1070                1075                1080

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1085                1090                1095

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala
    1100                1105                1110

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1115                1120                1125

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1130                1135                1140

Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1145                1150                1155

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1160                1165                1170

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1190                1195                1200

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1205                1210                1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1220                1225                1230

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
```

```
    1235                1240                1245

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1250                1255                1260

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                1270                1275

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser
    1280                1285                1290

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1295                1300                1305

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1310                1315                1320

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1325                1330                1335

Pro Ala  Ser Ser Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    1340                1345                1350

Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    1355                1360                1365

Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1370                1375                1380

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1385                1390                1395

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    1400                1405                1410

Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
    1415                1420                1425

Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1430                1435                1440
```

```
Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
    1445                 1450                 1455

Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1460                 1465                 1470

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
    1475                 1480                 1485

Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
    1490                 1495                 1500

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    1505                 1510                 1515

Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
    1520                 1525                 1530

Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    1535                 1540                 1545

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    1550                 1555                 1560

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    1565                 1570                 1575

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    1580                 1585                 1590

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    1595                 1600                 1605

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    1610                 1615                 1620

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    1625                 1630                 1635

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
    1640                 1645                 1650
```

```
Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
    1655                1660                1665

Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
    1670                1675                1680

Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr
    1685                1690                1695

Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp
    1700                1705                1710

Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn
    1715                1720                1725

Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser Leu Asp  Pro Pro Leu
    1730                1735                1740

Leu Thr  Arg Tyr Leu Arg Ile  His Pro Gln Ser Trp  Val His Gln
    1745                1750                1755

Ile Ala  Leu Arg Met Glu Val  Leu Gly Cys Glu Ala  Gln Asp Leu
    1760                1765                1770

Tyr Gly  Ala Pro Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1775                1780                1785

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1790                1795                1800

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1805                1810                1815

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1820                1825                1830

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1835                1840                1845

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1850                1855                1860
```

```
Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    1865                1870                1875

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    1880                1885                1890

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1895                1900                1905

Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1910                1915                1920

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1925                1930                1935

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    1940                1945                1950

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1955                1960                1965

Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1970                1975                1980

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Thr
    1985                1990                1995

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    2000                2005                2010

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2015                2020                2025

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    2030                2035                2040

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    2045                2050                2055

Pro Ser  Gly Ala Thr Gly Ser  Ala Ser Ser Glu Gln  Lys Leu Ile
```

2060 2065 2070

Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His His His His
2075 2080 2085

His

<210> 1462
<211> 6270
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

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<210> 1463
<211> 1945
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1463
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn

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    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350
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Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575
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Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800
```

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Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
```

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Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
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Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1160                1165                1170

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1175                1180                1185

Thr Ser  Gly Ser Glu Thr Pro  Ala Ser Ser Ala Pro  Cys Asn Ile
    1190                1195                1200

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    1205                1210                1215
```

```
Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    1220                 1225                 1230

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    1235                 1240                 1245

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    1250                 1255                 1260

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    1265                 1270                 1275

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    1280                 1285                 1290

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    1295                 1300                 1305

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    1310                 1315                 1320

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    1325                 1330                 1335

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    1340                 1345                 1350

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    1355                 1360                 1365

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    1370                 1375                 1380

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    1385                 1390                 1395

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    1400                 1405                 1410

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    1415                 1420                 1425
```

```
Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    1430                1435                1440

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    1445                1450                1455

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    1460                1465                1470

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    1475                1480                1485

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    1490                1495                1500

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    1505                1510                1515

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    1520                1525                1530

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    1535                1540                1545

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    1550                1555                1560

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    1565                1570                1575

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    1580                1585                1590

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    1595                1600                1605

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    1610                1615                1620

Cys Glu  Ala Gln Asp Leu Tyr  Gly Ala Pro Pro Gly  Ala Ser Pro
    1625                1630                1635
```

```
Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1640                1645                1650

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1655                1660                1665

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1670                1675                1680

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1685                1690                1695

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1700                1705                1710

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1715                1720                1725

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1730                1735                1740

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1745                1750                1755

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1760                1765                1770

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1775                1780                1785

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1790                1795                1800

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1805                1810                1815

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1820                1825                1830

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
```

```
    1835                1840                1845

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1850                1855                1860

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1865                1870                1875

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    1880                1885                1890

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1895                1900                1905

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1910                1915                1920

Ser Glu  Gln Lys Leu Ile Ser  Glu Glu Asp Leu Ser  Pro Ala Thr
    1925                1930                1935

Gly His  His His His His His
    1940                1945
```

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<211> 5838
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

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cctgctcatg ggagacaagt gacagtacag gaatttgctc tgtttttcac catctttgat 3420

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ccgggatcgg ggacagcgtc aagctcgccc ggaagctcca cgccttcggg ggcaaccggg 5760

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<210> 1465
<211> 2053
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1465
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

```
Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
```

```
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765
```

```
Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990
```

```
Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005


Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020


Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035


Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050


Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065


Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080


Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095


Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110


Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125


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


Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155


Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1160                1165                1170


Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1175                1180                1185


Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200
```

```
Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                 1210                 1215

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1220                 1225                 1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1235                 1240                 1245

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                 1255                 1260

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1265                 1270                 1275

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1280                 1285                 1290

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Ala Ser  Ser Ala Pro
    1295                 1300                 1305

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1310                 1315                 1320

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1325                 1330                 1335

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1340                 1345                 1350

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1355                 1360                 1365

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1370                 1375                 1380

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1385                 1390                 1395

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
```

1400 1405 1410

Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln
1415 1420 1425

Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile
1430 1435 1440

Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg
1445 1450 1455

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1460 1465 1470

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1475 1480 1485

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1490 1495 1500

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1505 1510 1515

Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe
1520 1525 1530

Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
1535 1540 1545

Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser
1550 1555 1560

Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn
1565 1570 1575

Ser Cys Ser Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp
1580 1585 1590

Ala Gln Ile Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr
1595 1600 1605

```
Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1610                 1615                 1620

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1625                 1630                 1635

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1640                 1645                 1650

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1655                 1660                 1665

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1670                 1675                 1680

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1685                 1690                 1695

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1700                 1705                 1710

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1715                 1720                 1725

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Pro Gly
    1730                 1735                 1740

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1745                 1750                 1755

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1760                 1765                 1770

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1775                 1780                 1785

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1790                 1795                 1800

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1805                 1810                 1815
```

```
Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1820                1825                1830

Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1835                1840                1845

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1850                1855                1860

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1865                1870                1875

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1880                1885                1890

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1895                1900                1905

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1910                1915                1920

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1925                1930                1935

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1940                1945                1950

Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1955                1960                1965

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1970                1975                1980

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Pro
    1985                1990                1995

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr
    2000                2005                2010

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    2015                2020                2025
```

Ser Ala Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser
    2030   2035   2040

Pro Ala Thr Gly His His His His His His
    2045   2050

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<211> 6162
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac   180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt   240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct   300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa   360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc   420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct   480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga   540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct   600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg   660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg   720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg   780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac   840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg   900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg   960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat   1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt   1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

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gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

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gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

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ccgtcgggag cgactgggtc gcccggatca agcccgtcag cttccactgg aacaggaccc 2460

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ggcagtgtcc ctcagttcaa gaaagttgtt ttccaggaat ttactgatgg ctcctttact 3000

cagcccttat accgtggaga actaaatgaa catttgggac tcctggggcc atatataaga 3060

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cctgctcatg ggagacaagt gacagtacag gaatttgctc tgtttttcac catctttgat 3420

gagaccaaaa gctggtactt cactgaaaat atggaaagaa actgcagggg cgcgccaggt 3480

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gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 4080

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tcgactggga ctggacccgg aaccccggga tcggggacag cgtcaagctc gcccggaagc 6060

tccacgcctt cgggggcaac cgggtcagcc tcgagcgaac aaaaactcat ctcagaagag 6120

gatctgtcac ctgcaaccgg tcatcatcac catcaccatt ga 6162

<210> 1467
<211> 2197
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1467
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
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    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
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```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Gly Thr Pro Gly
            740                 745                 750

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        755                 760                 765

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    770                 775                 780

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
785                 790                 795                 800

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815
```

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Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
865                 870                 875                 880

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln
            900                 905                 910

Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met
        915                 920                 925

Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
    930                 935                 940

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
945                 950                 955                 960

Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn
                965                 970                 975

Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
            980                 985                 990

Glu Phe Thr Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
        995                 1000                1005

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1010                1015                1020

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1025                1030                1035
```

```
Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
    1040                1045                1050

Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
    1055                1060                1065

Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
    1070                1075                1080

Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
    1085                1090                1095

Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
    1100                1105                1110

Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1115                1120                1125

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

Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1160                1165                1170

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1175                1180                1185

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1190                1195                1200

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1205                1210                1215

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1220                1225                1230

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
```

1235 1240 1245

Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
1250 1255 1260

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
1265 1270 1275

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
1280 1285 1290

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
1295 1300 1305

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
1310 1315 1320

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1325 1330 1335

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr
1340 1345 1350

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
1355 1360 1365

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
1370 1375 1380

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
1385 1390 1395

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
1400 1405 1410

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
1415 1420 1425

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
1430 1435 1440

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Thr Gly  Ser Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1445                 1450                 1455

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1460                 1465                 1470

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                 1480                 1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                 1495                 1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1505                 1510                 1515

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1520                 1525                 1530

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                 1540                 1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                 1555                 1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                 1570                 1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                 1585                 1590

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                 1600                 1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                 1615                 1620

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                 1630                 1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                 1645                 1650
```

```
Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1655                 1660                 1665

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                 1675                 1680

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                 1690                 1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                 1705                 1710

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1715                 1720                 1725

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                 1735                 1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                 1750                 1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                 1765                 1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                 1780                 1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                 1795                 1800

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                 1810                 1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1820                 1825                 1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                 1840                 1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1850                 1855                 1860
```

```
Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1865                1870                1875

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ala Ser Pro  Gly Thr Ser
    1880                1885                1890

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1895                1900                1905

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1910                1915                1920

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1925                1930                1935

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1940                1945                1950

Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1955                1960                1965

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1970                1975                1980

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1985                1990                1995

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    2000                2005                2010

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2015                2020                2025

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    2030                2035                2040

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    2045                2050                2055

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
```

2060 2065 2070

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
2075 2080 2085

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
2090 2095 2100

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
2105 2110 2115

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
2120 2125 2130

Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
2135 2140 2145

Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
2150 2155 2160

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Ala Ser Ser Glu Gln
2165 2170 2175

Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His
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His His His His
2195

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
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            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
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```
Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860
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Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880


Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895


Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910


Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940


Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960


Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975


Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990


Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005


Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020


Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035


Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050


Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065


Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080
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Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
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Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
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Asn Met  Glu Arg Asn Cys Arg  Gly Ala Pro Gly Ser  Pro Ala Gly
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    1310                1315                1320

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1325                1330                1335

Pro Ala  Ser Ser Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    1340                1345                1350

Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    1355                1360                1365

Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1370                1375                1380

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1385                1390                1395

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    1400                1405                1410

Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
    1415                1420                1425

Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1430                1435                1440

Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
    1445                1450                1455

Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1460                1465                1470

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
    1475                1480                1485
```

```
Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
    1490                 1495                 1500

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    1505                 1510                 1515

Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
    1520                 1525                 1530

Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    1535                 1540                 1545

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    1550                 1555                 1560

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    1565                 1570                 1575

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    1580                 1585                 1590

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    1595                 1600                 1605

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    1610                 1615                 1620

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    1625                 1630                 1635

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
    1640                 1645                 1650

Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
    1655                 1660                 1665

Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
    1670                 1675                 1680

Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr
    1685                 1690                 1695
```

```
Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp
    1700                 1705                 1710

Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn
    1715                 1720                 1725

Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser Leu Asp  Pro Pro Leu
    1730                 1735                 1740

Leu Thr  Arg Tyr Leu Arg Ile  His Pro Gln Ser Trp  Val His Gln
    1745                 1750                 1755

Ile Ala  Leu Arg Met Glu Val  Leu Gly Cys Glu Ala  Gln Asp Leu
    1760                 1765                 1770

Tyr Gly  Ala Pro Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1775                 1780                 1785

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1790                 1795                 1800

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1805                 1810                 1815

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1820                 1825                 1830

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1835                 1840                 1845

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1850                 1855                 1860

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    1865                 1870                 1875

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    1880                 1885                 1890

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1895                 1900                 1905
```

Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
1910 1915 1920

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1925 1930 1935

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
1940 1945 1950

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
1955 1960 1965

Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
1970 1975 1980

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
1985 1990 1995

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
2000 2005 2010

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
2015 2020 2025

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
2030 2035 2040

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
2045 2050 2055

Pro Ser Gly Ala Thr Gly Ser Ala Ser Ser Glu Gln Lys Leu Ile
2060 2065 2070

Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His His His His
2075 2080 2085

His

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<220>
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polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

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<211> 2197
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1471
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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu

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            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
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Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655


Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750


Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765


Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780


Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800


Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815


Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830


Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845
```

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Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
```

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Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1100                1105                1110

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260
```

```
Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Gly Ala Pro Gly Thr  Pro Gly Ser
    1295                1300                1305

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1310                1315                1320

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1325                1330                1335

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    1340                1345                1350

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser
    1355                1360                1365

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1370                1375                1380

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1385                1390                1395

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    1400                1405                1410

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1415                1420                1425

Ser Gly  Ala Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1430                1435                1440

Thr Gly  Ser Pro Ala Ser Ser  Ala Pro Cys Asn Ile  Gln Met Glu
    1445                1450                1455

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1460                1465                1470
```

```
Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1475                1480                1485

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1490                1495                1500

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1505                1510                1515

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1520                1525                1530

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1535                1540                1545

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1550                1555                1560

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1565                1570                1575

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1580                1585                1590

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1595                1600                1605

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1610                1615                1620

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1625                1630                1635

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1640                1645                1650

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1655                1660                1665

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1670                1675                1680
```

```
Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1685                1690                1695

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1700                1705                1710

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1715                1720                1725

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1730                1735                1740

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1745                1750                1755

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1760                1765                1770

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1775                1780                1785

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1790                1795                1800

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1805                1810                1815

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1820                1825                1830

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1835                1840                1845

Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1850                1855                1860

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1865                1870                1875

Gln Asp  Leu Tyr Gly Ala Pro  Pro Gly Ala Ser Pro  Gly Thr Ser
```

```
    1880                1885                1890

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1895                1900                1905

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1910                1915                1920

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1925                1930                1935

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1940                1945                1950

Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1955                1960                1965

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1970                1975                1980

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1985                1990                1995

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    2000                2005                2010

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2015                2020                2025

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    2030                2035                2040

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    2045                2050                2055

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    2060                2065                2070

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2075                2080                2085
```

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
2090 2095 2100

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
2105 2110 2115

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
2120 2125 2130

Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
2135 2140 2145

Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
2150 2155 2160

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Ala Ser Ser Glu Gln
2165 2170 2175

Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro Ala Thr Gly His His
2180 2185 2190

His His His His
2195

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

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catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

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atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1473
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1 5 10 15

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
```

225 230 235 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
245 250 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
260 265 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
275 280 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
290 295 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305 310 315 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
325 330 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
340 345 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
355 360 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
370 375 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385 390 395 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
405 410 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
420 425 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
435 440 445

```
Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ala Pro Pro Gly Ala Ser
            740                 745                 750

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        755                 760                 765

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
    770                 775                 780

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
785                 790                 795                 800

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                805                 810                 815

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            820                 825                 830

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
        835                 840                 845

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
    850                 855                 860

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
865                 870                 875                 880

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                885                 890                 895
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Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            900                 905                 910

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        915                 920                 925

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
    930                 935                 940

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
945                 950                 955                 960

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                965                 970                 975

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
            980                 985                 990

Pro Gly Thr Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
        995                 1000                1005

Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1010                1015                1020

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Ala Ser
    1025                1030                1035

Ser Pro  Pro Val Leu Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr
    1040                1045                1050

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1055                1060                1065

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1070                1075                1080

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1085                1090                1095

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
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Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1115                1120                1125

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1130                1135                1140

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1145                1150                1155

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1160                1165                1170

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1175                1180                1185

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1190                1195                1200

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1205                1210                1215

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1220                1225                1230

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1235                1240                1245

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1250                1255                1260

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1265                1270                1275

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1280                1285                1290

Asn Met  Glu Arg Asn Cys Arg  Gly Ala Pro Gly Thr  Pro Gly Ser
    1295                1300                1305
```

```
Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
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Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1325                 1330                 1335

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1340                 1345                 1350

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1355                 1360                 1365

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1370                 1375                 1380

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1385                 1390                 1395

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    1400                 1405                 1410

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1415                 1420                 1425

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1430                 1435                 1440

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1445                 1450                 1455

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
    1460                 1465                 1470

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1475                 1480                 1485

Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1490                 1495                 1500

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1505                 1510                 1515
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Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
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Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser
    1535                1540                1545

Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1550                1555                1560

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1565                1570                1575

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Ala Ser
    1580                1585                1590

Ser Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1595                1600                1605

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1610                1615                1620

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1625                1630                1635

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1640                1645                1650

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1655                1660                1665

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1670                1675                1680

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1685                1690                1695

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1700                1705                1710

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1715                1720                1725
```

```
Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1730                1735                1740

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1745                1750                1755

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1760                1765                1770

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1775                1780                1785

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1790                1795                1800

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1805                1810                1815

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1820                1825                1830

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1835                1840                1845

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1850                1855                1860

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1865                1870                1875

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1880                1885                1890

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1895                1900                1905

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1910                1915                1920

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
```

1925 1930 1935

Thr Gln Gly Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu
1940 1945 1950

Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe
1955 1960 1965

Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser
1970 1975 1980

Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg
1985 1990 1995

Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu
2000 2005 2010

Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Gly Ala
2015 2020 2025

Pro Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
2030 2035 2040

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
2045 2050 2055

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
2060 2065 2070

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
2075 2080 2085

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
2090 2095 2100

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
2105 2110 2115

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
2120 2125 2130

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Ala Thr  Gly Ser Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    2135                2140                2145

Gly Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    2150                2155                2160

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly
    2165                2170                2175

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    2180                2185                2190

Ala Thr  Gly Ser Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    2195                2200                2205

Gly Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    2210                2215                2220

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    2225                2230                2235

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    2240                2245                2250

Ala Thr  Gly Ser Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    2255                2260                2265

Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2270                2275                2280

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
    2285                2290                2295

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    2300                2305                2310

Ala Thr  Gly Ser Ala Ser Ser  Glu Gln Lys Leu Ile  Ser Glu Glu
    2315                2320                2325

Asp Leu  Ser Pro Ala Thr Gly  His His His His His  His
    2330                2335                2340
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<211> 7026
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

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<212> PRT
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polypeptide

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20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val

```
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
```

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Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
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Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
```

```
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155
```

```
Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                 1165                 1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                 1180                 1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                 1195                 1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                 1210                 1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                 1225                 1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                 1255                 1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                 1270                 1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                 1285                 1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                 1300                 1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                 1315                 1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                 1330                 1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                 1345                 1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                 1360                 1365
```

```
Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Ala Ser
    1430                1435                1440

Ser His  His His His His His  His His
    1445                1450
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<210> 1476
<211> 4359
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 1476
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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

gtgcagcttg aggatccaga gttccaagcc tccaacatca tgcacagcat caatggctat 1860

gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

agcattggag cacagactga cttccttttct gtcttcttct ctggatatac cttcaaacac 1980

aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

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ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 2580

catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 2640

ttcagaaatc aggcctctcg tccctattcc ttctattcta gccttatttc ttatgaggaa 2700

gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 2760

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 2820

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 2880

cttctggtct gccacactaa cacactgaac cctgctcatg ggagacaagt gacagtacag 2940

gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3000

atggaaagaa actgcagggc tccctgcaat atccagatgg aagatcccac ttttaaagag 3060

aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 3120

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 3180

tctattcatt tcagtggaca tgtgttcact gtacgaaaaa aagaggagta taaaatggca 3240

ctgtacaatc tctatccagg tgtttttgag acagtggaaa tgttaccatc caaagctgga 3300

atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 3360

ctggtgtaca gcaataagtg tcagactccc ctgggaatgg cttctggaca cattagagat 3420

tttcagatta cagcttcagg acaatatgga cagtgggccc caaagctggc cagacttcat 3480

tattccggat caatcaatgc ctggagcacc aaggagccct tttcttggat caaggtggat 3540

ctgttggcac caatgattat tcacggcatc aagacccagg gtgcccgtca gaagttctcc 3600

agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 3660

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 3720

ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 3780

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 3840

agcatgccat tgggaatgga gagtaaagca atatcagatg cacagattac tgcttcatcc 3900

tactttacca atatgtttgc cacctggtct ccttcaaaag ctcgacttca cctccaaggg 3960

aggagtaatg cctggagacc tcaggtgaat aatccaaaag agtggctgca agtggacttc 4020

cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4080

atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 4140

tttcagaatg gcaaagtaaa ggtttttcag ggaaatcaag actccttcac acctgtggtg 4200

aactctctag acccaccgtt actgactcgc taccttcgaa ttcaccccca gagttgggtg 4260

caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcg 4320

ccagcctcga gccatcacca tcatcaccat caccattga 4359

<210> 1477
<211> 1449
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1477
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

```
Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
```

```
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990
```

```
Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050


Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065


Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080


Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095


Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110


Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125


Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140


Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155


Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170


Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185


Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200
```

```
Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                 1210                 1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                 1225                 1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                 1255                 1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                 1270                 1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                 1285                 1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                 1300                 1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                 1315                 1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                 1330                 1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                 1345                 1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                 1360                 1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                 1375                 1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                 1390                 1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                 1405                 1410
```

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1415   1420   1425

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Ala Ser Ser His His
    1430   1435   1440

His His His His His His
    1445

<210> 1478
<211> 4350
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 1478
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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

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Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
50 55 60

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
65 70 75 80

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
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Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
100 105 110

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
115 120 125

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
130 135 140

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
145 150 155 160

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Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Ala Ser Ser
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Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr
            180                 185                 190

Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu
        195                 200                 205

Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro
    210                 215                 220

Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn
225                 230                 235                 240

Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp
                245                 250                 255

Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu
            260                 265                 270

Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp
        275                 280                 285

Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu
    290                 295                 300

Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser
305                 310                 315                 320

Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys
                325                 330                 335

Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe
            340                 345                 350

Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln
        355                 360                 365

Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val
    370                 375                 380
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Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg
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Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val
                405                 410                 415

His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg
            420                 425                 430

Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr
        435                 440                 445

Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser
    450                 455                 460

His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro
465                 470                 475                 480

Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr
                485                 490                 495

Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp
            500                 505                 510

Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His
        515                 520                 525

Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp
    530                 535                 540

Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln
545                 550                 555                 560

Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val
                565                 570                 575

Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile
            580                 585                 590

Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly
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Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn
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Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg
625 630 635 640

Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly
645 650 655

Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr
660 665 670

Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn
675 680 685

Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys
690 695 700

Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys
705 710 715 720

Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr
725 730 735

Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln
740 745 750

Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn
755 760 765

Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val
770 775 780

Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser
785 790 795 800

Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp
805 810 815

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Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met
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Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg
        835                 840                 845

Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn
    850                 855                 860

Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu
865                 870                 875                 880

Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro
                885                 890                 895

Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln
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Gly Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        915                 920                 925

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                965                 970                 975

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
        995                 1000                1005

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
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Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
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Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
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Ser Ser  Thr Gly Ser Pro Ala  Ser Ser Ser Asp Gln  Glu Glu Ile
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Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met Lys Lys  Glu Asp Phe
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Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser Pro Arg  Ser Phe Gln
    1085                1090                1095

Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala Val Glu  Arg Leu Trp
    1100                1105                1110

Asp Tyr  Gly Met Ser Ser Ser  Pro His Val Leu Arg  Asn Arg Ala
    1115                1120                1125

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

Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu Tyr Arg  Gly Glu Leu
    1145                1150                1155

Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val
    1160                1165                1170

Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro
    1175                1180                1185

Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg
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Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr
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Lys Thr  Tyr Phe Trp Lys Val  Gln His His Met Ala  Pro Thr Lys
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Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp
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```

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Leu Glu  Lys Asp Val His Ser  Gly Leu Ile Gly Pro  Leu Leu Val
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Cys His  Thr Asn Thr Leu Asn  Pro Ala His Gly Arg  Gln Val Thr
    1265                1270                1275

Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys
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Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Gly Ala
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Pro Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
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Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
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Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
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Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
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Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
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Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
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Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
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Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
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Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
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Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ala Ser  Ser Ala Pro
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Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
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Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
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Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
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Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
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Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
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Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
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Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
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Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
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Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
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Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
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Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
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Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
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Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
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Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
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Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
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Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
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Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
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Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
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Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
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Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
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Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
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Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
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Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
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Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
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Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1850                1855                1860
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Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
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His His His His His His
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<210> 1481
<211> 1596
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1481

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45


Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60


Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80


Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95


Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110


Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125


Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140


Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160


His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175


Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190


His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205
```

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
```

```
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860
```

```
Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880


Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895


Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910


Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050


Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065


Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080
```

```
Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290
```

```
Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
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Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Thr Ser
    1430                1435                1440

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1445                1450                1455

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1460                1465                1470

Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1475                1480                1485

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu
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    1490                1495                1500

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser
    1505                1510                1515

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1520                1525                1530

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1535                1540                1545

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1550                1555                1560

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1565                1570                1575

Ser Glu  Gly Ser Ala Pro Gly  Ala Ser Ser His His  His His His
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His His  His
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<211> 4791
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

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Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255
```

```
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
```

```
Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
```

```
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910
```

```
Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925


Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940


Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
               965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050


Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065


Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080


Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095


Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110


Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125
```

```
Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335
```

```
Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Pro Gly
    1430                1435                1440

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1445                1450                1455

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr
    1460                1465                1470

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1475                1480                1485

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1490                1495                1500

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly
    1505                1510                1515

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1520                1525                1530

Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
```

1535 1540 1545

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
1550 1555 1560

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
1565 1570 1575

Ser Gly Thr Ala Ser Ser Ser Ala Ser Ser His His His His His
1580 1585 1590

His His His
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<210> 1484
<211> 4791
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

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aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

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cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

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agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 3660

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 3720

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tcgcctgggg cgtcacccgg cacgtcgagc acaggcagcc ccggaacccc tggatcggga 4740

accgcgtcgt caagcgcctc gagccatcac catcatcacc atcaccattg a 4791

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<211> 1740
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1485
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
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Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525
```

```
Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
```

```
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960
```

```
Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170
```

```
Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380
```

```
Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Gly Thr
    1430                1435                1440

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1445                1450                1455

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1460                1465                1470

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1475                1480                1485

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1490                1495                1500

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1505                1510                1515

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1520                1525                1530

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1535                1540                1545

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1550                1555                1560

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    1565                1570                1575

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
```

1580 1585 1590

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
1595 1600 1605

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
1610 1615 1620

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
1625 1630 1635

Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
1640 1645 1650

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
1655 1660 1665

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
1670 1675 1680

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
1685 1690 1695

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
1700 1705 1710

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
1715 1720 1725

Pro Ala Ser Ser His His His His His His His His His
1730 1735 1740

<210> 1486
<211> 5223
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 1486
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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

atcgctaagc caaggccacc ctggatgggt ctgctaggtc ctaccatcca ggctgaggtt 240

tatgatacag tggtcattac acttaagaac atggcttccc atcctgtcag tcttcatgct 300

gttggtgtat cctactggaa agcttctgag ggagctgaat atgatgatca gaccagtcaa 360

agggagaaag aagatgataa agtcttccct ggtggaagcc atacatatgt ctggcaggtc 420

ctgaaagaga atggtccaat ggcctctgac ccactgtgcc ttacctactc atatctttct 480

catgtggacc tggtaaaaga cttgaattca ggcctcattg gagccctact agtatgtaga 540

gaagggagtc tggccaagga aaagacacag accttgcaca aatttatact acttttgct 600

gtatttgatg aagggaaaag ttggcactca gaaacaaaga actccttgat gcaggatagg 660

gatgctgcat ctgctcgggc ctggcctaaa atgcacacag tcaatggtta tgtaaacagg 720

tctctgccag gtctgattgg atgccacagg aaatcagtct attggcatgt gattggaatg 780

ggcaccactc ctgaagtgca ctcaatattc ctcgaaggtc acacatttct tgtgaggaac 840

catcgccagg ctagcttgga aatctcgcca ataactttcc ttactgctca aacactcttg 900

atggaccttg gacagtttct actgttttgt catatctctt cccaccaaca tgatggcatg 960

gaagcttatg tcaaagtaga cagctgtcca gaggaacccc aactacgaat gaaaaataat 1020

gaagaagcgg aagactatga tgatgatctt actgattctg aaatggatgt ggtcaggttt 1080

gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

acttgggtac attacattgc tgctgaagag gaggactggg actatgctcc cttagtcctc 1200

gcccccgatg acagaagtta taaaagtcaa tatttgaaca atggccctca gcggattggt 1260

aggaagtaca aaaaagtccg atttatggca tacacagatg aaacctttaa gactcgtgaa 1320

gctattcagc atgaatcagg aatcttggga cctttacttt atggggaagt tggagacaca 1380

ctgttgatta tatttaagaa tcaagcaagc agaccatata acatctaccc tcacggaatc 1440

actgatgtcc gtcctttgta ttcaaggaga ttaccaaaag gtgtaaaaca tttgaaggat 1500

tttccaattc tgccaggaga aatattcaaa tataaatgga cagtgactgt agaagatggg 1560

ccaactaaat cagatcctcg gtgcctgacc cgctattact ctagtttcgt taatatggag 1620

agagatctag cttcaggact cattggccct ctcctcatct gctacaaaga atctgtagat 1680

caaagaggaa accagataat gtcagacaag aggaatgtca tcctgttttc tgtatttgat 1740

gagaaccgaa gctggtacct cacagagaat atacaacgct ttctccccaa tccagctgga 1800

gtgcagcttg aggatccaga gttccaagcc tccaacatca tgcacagcat caatggctat 1860

gtttttgata gtttgcagtt gtcagtttgt ttgcatgagg tggcatactg gtacattcta 1920

agcattggag cacagactga cttccttttct gtcttcttct ctggatatac cttcaaacac 1980

aaaatggtct atgaagacac actcacccta ttcccattct caggagaaac tgtcttcatg 2040

tcgatggaaa acccaggtct atggattctg gggtgccaca actcagactt tcggaacaga 2100

ggcatgaccg ccttactgaa ggtttctagt tgtgacaaga acactggtga ttattacgag 2160

gacagttatg aagatatttc agcatacttg ctgagtaaaa acaatgccat tgaaccaaga 2220

agcttctctc aaaacccacc agtcttgaaa cgccatcaac gggaaataac tcgtactact 2280

cttcagtcag atcaagagga aatcgattat gatgatacca tatcagttga aatgaagaag 2340

gaagattttg acatttatga tgaggatgaa aatcagagcc cccgcagctt tcaaaagaaa 2400

acacgacact attttattgc tgcagtggag aggctctggg attatgggat gagtagctcc 2460

ccacatgttc taagaaacag ggctcagagt ggcagtgtcc ctcagttcaa gaaagttgtt 2520

ttccaggaat ttactgatgg ctcctttact cagcccttat accgtggaga actaaatgaa 2580

catttgggac tcctggggcc atatataaga gcagaagttg aagataatat catggtaact 2640

ttcagaaatc aggcctctcg tccctattcc ttctattcta gccttatttc ttatgaggaa 2700

gatcagaggc aaggagcaga acctagaaaa aactttgtca agcctaatga aaccaaaact 2760

tacttttgga aagtgcaaca tcatatggca cccactaaag atgagtttga ctgcaaagcc 2820

tgggcttatt tctctgatgt tgacctggaa aaagatgtgc actcaggcct gattggaccc 2880

cttctggtct gccacactaa cacactgaac cctgctcatg ggagacaagt gacagtacag 2940

gaatttgctc tgtttttcac catctttgat gagaccaaaa gctggtactt cactgaaaat 3000

atggaaagaa actgcagggc tccctgcaat atccagatgg aagatcccac ttttaaagag 3060

aattatcgct tccatgcaat caatggctac ataatggata cactacctgg cttagtaatg 3120

gctcaggatc aaaggattcg atggtatctg ctcagcatgg gcagcaatga aaacatccat 3180

tctattcatt tcagtggaca tgtgttcact gtacgaaaaa aagaggagta taaaatggca 3240

ctgtacaatc tctatccagg tgtttttgag acagtggaaa tgttaccatc caaagctgga 3300

atttggcggg tggaatgcct tattggcgag catctacatg ctgggatgag cacacttttt 3360

ctggtgtaca gcaataagtg tcagactccc ctgggaatgg cttctggaca cattagagat 3420

tttcagatta cagcttcagg acaatatgga cagtgggccc caaagctggc cagacttcat 3480

tattccggat caatcaatgc ctggagcacc aaggagccct tttcttggat caaggtggat 3540

ctgttggcac caatgattat tcacggcatc aagacccagg gtgcccgtca gaagttctcc 3600

agcctctaca tctctcagtt tatcatcatg tatagtcttg atgggaagaa gtggcagact 3660

tatcgaggaa attccactgg aaccttaatg gtcttctttg gcaatgtgga ttcatctggg 3720

ataaaacaca atatttttaa ccctccaatt attgctcgat acatccgttt gcacccaact 3780

cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 3840

agcatgccat tgggaatgga gagtaaagca atatcagatg cacagattac tgcttcatcc 3900

tactttacca atatgtttgc cacctggtct ccttcaaaag ctcgacttca cctccaaggg 3960

aggagtaatg cctggagacc tcaggtgaat aatccaaaag agtggctgca agtggacttc 4020

cagaagacaa tgaaagtcac aggagtaact actcagggag taaaatctct gcttaccagc 4080

atgtatgtga aggagttcct catctccagc agtcaagatg gccatcagtg gactctcttt 4140

tttcagaatg gcaaagtaaa ggtttttcag ggaaatcaag actccttcac acctgtggtg 4200

aactctctag acccaccgtt actgactcgc taccttcgaa ttcaccccca gagttgggtg 4260

caccagattg ccctgaggat ggaggttctg ggctgcgagg cacaggacct ctacggcgcg 4320

ccaggtacct cagagtctgc tacccccgag tcagggccag gatcagagcc agccacctcc 4380

gggtctgaga cacccgggac ttccgagagt gccacccctg agtccggacc cgggtccgag 4440

cccgccactt ccggctccga aactcccggc acaagcgaga gcgctacccc agagtcagga 4500

ccaggaacat ctacagagcc ctctgaaggc tccgctccag ggtccccagc cggcagtccc 4560

actagcaccg aggagggaac ctctgaaagc gccacacccg aatcagggcc agggtctgag 4620

cctgctacca gcggcagcga gacaccaggc acctctgagt ccgccacacc agagtccgga 4680

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acatctactg aggaaggtac ctcaaccgag ccatccgagg gatcagctcc cggcacctca 4800

gagtcggcaa ccccggagtc tggacccgga acttccgaaa gtgccacacc agagtccggt 4860

cccgggactt cagaatcagc aacacccgag tccggccctg ggtctgaacc cgccacaagt 4920

ggtagtgaga caccaggatc agaacctgct acctcagggt cagagacacc cggatctccg 4980

gcaggctcac caacctccac tgaggagggc accagcacag aaccaagcga gggctccgca 5040

cccggaacaa gcactgaacc cagtgagggt tcagcacccg gctctgagcc ggccacaagt 5100

ggcagtgaga cacccggcac ttcagagagt gccacccccg agagtggccc aggcactagt 5160

accgagccct ctgaaggcag tgcgccagcc tcgagccatc accatcatca ccatcaccat 5220

tga 5223

<210> 1487
<211> 1740
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1487
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

```
Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160


His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175


Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190


His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205


His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220


Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240


Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255


Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270


Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285


Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300


Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320


Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335


Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350


Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365
```

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Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
```

```
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800
```

```
Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020
```

```
Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230
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Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1235                1240                1245

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Ala  Pro Pro Gly
```

1430 1435 1440

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
1445 1450 1455

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
1460 1465 1470

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
1475 1480 1485

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
1490 1495 1500

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
1505 1510 1515

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
1520 1525 1530

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
1535 1540 1545

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
1550 1555 1560

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
1565 1570 1575

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
1580 1585 1590

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
1595 1600 1605

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
1610 1615 1620

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
1625 1630 1635

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
1640 1645 1650

Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
1655 1660 1665

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
1670 1675 1680

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1685 1690 1695

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
1700 1705 1710

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
1715 1720 1725

Ser Ala Ser Ser His His His His His His His His His
1730 1735 1740

<210> 1488
<211> 5223
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 1488
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ctcggtgagc tgcctgtgga cgcaagattt cctcctagag tgccaaaatc ttttccattc 120

aacacctcag tcgtgtacaa aaagactctg tttgtagaat tcacggatca ccttttcaac 180

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gatgatgaca actctccttc ctttatccaa attcgctcag ttgccaagaa gcatcctaaa 1140

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cattatagca ttcgcagcac tcttcgcatg gagttgatgg gctgtgattt aaatagttgc 3840

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tga 5223

<210> 1489
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1489
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 1490
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1490
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro
35

<210> 1491
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1491
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
1 5 10 15

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 1492
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1492
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro
35

<210> 1493
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1493
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
1 5 10 15

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
20 25 30

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
35 40

<210> 1494
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1494
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
1 5 10 15

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
20 25 30

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
35 40

<210> 1495
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1495
Gly Ala Pro Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro
1 5 10 15

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
20 25 30

Ala Thr Gly Ser Pro Gly Pro Ser Gly Pro
35 40

<210> 1496
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1496
Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
1 5 10 15

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
20 25 30

Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
35 40

<210> 1497
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1497
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
50 55 60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
65 70 75 80

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
100 105 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
115 120 125

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

<210> 1498
<211> 144
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1498
Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
1 5 10 15

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
20 25 30

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
35 40 45

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
50 55 60

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
65 70 75 80

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
85 90 95

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser
100 105 110

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
115 120 125

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
130 135 140

<210> 1499
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1499
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
1 5 10 15

```
Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
            20                  25                  30

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        35                  40                  45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
    50                  55                  60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
65                  70                  75                  80

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                85                  90                  95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
            100                 105                 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
        115                 120                 125

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
145                 150                 155                 160

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
                165                 170                 175

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            180                 185                 190

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
        195                 200                 205

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
    210                 215                 220

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
```

225 230 235 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
245 250 255

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
260 265 270

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
275 280 285

<210> 1500
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1500
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
20 25 30

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
35 40 45

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
50 55 60

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
65 70 75 80

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
85 90 95

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
100 105 110

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
115 120 125

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
130 135 140

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
145 150 155 160

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
165 170 175

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
180 185 190

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
195 200 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
210 215 220

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225 230 235 240

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
245 250 255

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
260 265 270

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
275 280 285

<210> 1501
<211> 504
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1501
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

```
Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
            20                  25                  30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        35                  40                  45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Asn Pro
    50                  55                  60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65                  70                  75                  80

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                85                  90                  95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            100                 105                 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145                 150                 155                 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165                 170                 175

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180                 185                 190

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Asn Pro
        195                 200                 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    210                 215                 220

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240
```

```
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                245                 250                 255

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    290                 295                 300

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            340                 345                 350

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                405                 410                 415

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        435                 440                 445

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
```

```
    450                 455                 460

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro
            500
```

<210> 1502
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1502

```
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly
1               5                   10                  15

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
            20                  25                  30

Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
        35                  40                  45

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
    50                  55                  60

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser
65                  70                  75                  80

Glu Gly Gly Pro Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
                85                  90                  95

Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu
            100                 105                 110

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser
        115                 120                 125
```

```
Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
    130                 135                 140

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
145                 150                 155                 160

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
                165                 170                 175

Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
            180                 185                 190

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly
        195                 200                 205

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
    210                 215                 220

Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
225                 230                 235                 240

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly
                245                 250                 255

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
            260                 265                 270

Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
        275                 280                 285

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro
    290                 295                 300

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
305                 310                 315                 320

Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
                325                 330                 335

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro
```

```
            340                 345                 350

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser
        355                 360                 365

Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
    370                 375                 380

Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu
385                 390                 395                 400

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
                405                 410                 415

Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
            420                 425                 430

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
        435                 440                 445

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
    450                 455                 460

Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
465                 470                 475                 480

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu
                485                 490                 495

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
            500                 505                 510

Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
        515                 520                 525

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Glu Gly
    530                 535                 540

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
545                 550                 555                 560
```

Glu Gly Gly Pro Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
565 570 575

<210> 1503
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1503
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
100 105 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145 150 155 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu

```
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380
```

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385 390 395 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
405 410 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
420 425 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
435 440 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
450 455 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465 470 475 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
485 490 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
500 505 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
515 520 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
530 535 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545 550 555 560

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
565 570 575

<210> 1504
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<400> 1504

```
Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
1               5                   10                  15

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            20                  25                  30

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        35                  40                  45

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    50                  55                  60

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
65                  70                  75                  80

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
                85                  90                  95

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
            100                 105                 110

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
        115                 120                 125

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    130                 135                 140

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
145                 150                 155                 160

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
                165                 170                 175

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            180                 185                 190

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
        195                 200                 205
```

```
Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
    210                 215                 220

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
225                 230                 235                 240

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                245                 250                 255

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            260                 265                 270

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
        275                 280                 285

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    290                 295                 300

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
305                 310                 315                 320

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
                325                 330                 335

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser
            340                 345                 350

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        355                 360                 365

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    370                 375                 380

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
385                 390                 395                 400

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                405                 410                 415

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            420                 425                 430
```

```
Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
        435                 440                 445

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    450                 455                 460

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
465                 470                 475                 480

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
                485                 490                 495

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
            500                 505                 510

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        515                 520                 525

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    530                 535                 540

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
545                 550                 555                 560

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
                565                 570                 575


<210> 1505
<211> 540
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1505
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1               5                   10                  15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser
            20                  25                  30
```

```
Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
        35                  40                  45

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr
    50                  55                  60

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
65                  70                  75                  80

Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
                85                  90                  95

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
            100                 105                 110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
        115                 120                 125

Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
    130                 135                 140

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
145                 150                 155                 160

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
                165                 170                 175

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
            180                 185                 190

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
        195                 200                 205

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
    210                 215                 220

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
225                 230                 235                 240

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
                245                 250                 255
```

```
Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
            260                 265                 270

Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
        275                 280                 285

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
    290                 295                 300

Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly
305                 310                 315                 320

Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
                325                 330                 335

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
            340                 345                 350

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
        355                 360                 365

Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
    370                 375                 380

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
385                 390                 395                 400

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
                405                 410                 415

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
            420                 425                 430

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
        435                 440                 445

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly
    450                 455                 460

Ser Ala Ser Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
465                 470                 475                 480
```

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
485 490 495

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
500 505 510

Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
515 520 525

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
530 535 540

<210> 1506
<211> 836
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1506
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
1 5 10 15

Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro Gly Gly Ser Ser
20 25 30

Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
35 40 45

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro
50 55 60

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser
65 70 75 80

Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
85 90 95

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro
100 105 110

```
Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
        115                 120                 125

Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
    130                 135                 140

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
145                 150                 155                 160

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser
                165                 170                 175

Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
            180                 185                 190

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
        195                 200                 205

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
    210                 215                 220

Ser Gly Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
225                 230                 235                 240

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly
                245                 250                 255

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
            260                 265                 270

Gly Glu Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
        275                 280                 285

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
    290                 295                 300

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
305                 310                 315                 320

Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
                325                 330                 335
```

```
Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly
            340                 345                 350

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
        355                 360                 365

Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
    370                 375                 380

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly
385                 390                 395                 400

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
                405                 410                 415

Gly Glu Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
            420                 425                 430

Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Glu Gly
        435                 440                 445

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
    450                 455                 460

Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
465                 470                 475                 480

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro
                485                 490                 495

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu
            500                 505                 510

Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
        515                 520                 525

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Glu Gly
    530                 535                 540

Ser Ser Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
```

545 550 555 560

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
565 570 575

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro
580 585 590

Gly Glu Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
595 600 605

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly
610 615 620

Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser
625 630 635 640

Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
645 650 655

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Glu Gly
660 665 670

Ser Ser Gly Pro Gly Glu Ser Ser Gly Glu Ser Pro Gly Gly Ser Ser
675 680 685

Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
690 695 700

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
705 710 715 720

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
725 730 735

Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
740 745 750

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly
755 760 765

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
770 775 780

Glu Gly Gly Pro Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
785 790 795 800

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
805 810 815

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu
820 825 830

Ser Gly Ser Ser
835

<210> 1507
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1507
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala

```
            100                 105                 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145                 150                 155                 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320
```

```
Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540
```

```
Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545                 550                 555                 560


Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                565                 570                 575


Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            580                 585                 590


Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605


Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    610                 615                 620


Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625                 630                 635                 640


Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                645                 650                 655


Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670


Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        675                 680                 685


Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    690                 695                 700


Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
705                 710                 715                 720


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
                725                 730                 735


Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750


Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765
```

```
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
    770                 775                 780


Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800


Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                805                 810                 815


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            820                 825                 830


Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845


Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    850                 855                 860


<210> 1508
<211> 875
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide


<220>
<221> MOD_RES
<222> (430)..(432)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (443)..(446)
<223> Any amino acid

<400> 1508
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
1               5                   10                  15


Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
            20                  25                  30
```

```
Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
        35                  40                  45

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr
    50                  55                  60

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
65                  70                  75                  80

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
                85                  90                  95

Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
            100                 105                 110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
        115                 120                 125

Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
    130                 135                 140

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
145                 150                 155                 160

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
                165                 170                 175

Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
            180                 185                 190

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr
        195                 200                 205

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
    210                 215                 220

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
225                 230                 235                 240

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
                245                 250                 255
```

```
Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
            260                 265                 270

Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
        275                 280                 285

Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
    290                 295                 300

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
305                 310                 315                 320

Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                325                 330                 335

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
            340                 345                 350

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
        355                 360                 365

Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
    370                 375                 380

Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
385                 390                 395                 400

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
                405                 410                 415

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Pro Xaa Xaa Xaa
            420                 425                 430

Gly Ala Ser Ala Ser Gly Ala Pro Ser Thr Xaa Xaa Xaa Xaa Ser Glu
        435                 440                 445

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
    450                 455                 460

Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
465                 470                 475                 480
```

```
Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu
                485                 490                 495

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
            500                 505                 510

Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly
        515                 520                 525

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser
    530                 535                 540

Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser
545                 550                 555                 560

Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
                565                 570                 575

Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu
            580                 585                 590

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
        595                 600                 605

Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
    610                 615                 620

Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro
625                 630                 635                 640

Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser
                645                 650                 655

Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
            660                 665                 670

Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Ser
        675                 680                 685

Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
```

690 695 700

Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
705 710 715 720

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser
725 730 735

Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
740 745 750

Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly
755 760 765

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser
770 775 780

Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
785 790 795 800

Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly
805 810 815

Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser
820 825 830

Gly Glu Ser Ser Thr Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
835 840 845

Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
850 855 860

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
865 870 875

<210> 1509
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1509
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1   5   10   15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
            20   25   30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        35   40   45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    50   55   60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65   70   75   80

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                85   90   95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            100   105   110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115   120   125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130   135   140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145   150   155   160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165   170   175

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180   185   190

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        195   200   205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr

```
    210                 215                 220

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                245                 250                 255

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    290                 295                 300

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            340                 345                 350

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                405                 410                 415

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430
```

```
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        435                 440                 445

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            500                 505                 510

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        515                 520                 525

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    530                 535                 540

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            580                 585                 590

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        595                 600                 605

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
625                 630                 635                 640

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                645                 650                 655
```

```
Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            660                 665                 670

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        675                 680                 685

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    690                 695                 700

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
705                 710                 715                 720

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
                725                 730                 735

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            740                 745                 750

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        755                 760                 765

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    770                 775                 780

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
785                 790                 795                 800

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                805                 810                 815

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            820                 825                 830

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        835                 840                 845

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    850                 855                 860
```

<210> 1510
<211> 875

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1510
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
20 25 30

Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
35 40 45

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
50 55 60

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
65 70 75 80

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
85 90 95

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu Pro
100 105 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
130 135 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
145 150 155 160

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
165 170 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
180 185 190

```
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    210                 215                 220

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
225                 230                 235                 240

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    290                 295                 300

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
305                 310                 315                 320

Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            340                 345                 350

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
385                 390                 395                 400

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415
```

```
Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Ala Ser Ala Ser Gly Ala Pro Ser Thr Gly Gly Thr Ser Glu Ser
        435                 440                 445

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    450                 455                 460

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
465                 470                 475                 480

Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu
                485                 490                 495

Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
            500                 505                 510

Thr Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        515                 520                 525

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
    530                 535                 540

Ala Ser Thr Gly Thr Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
545                 550                 555                 560

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                565                 570                 575

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Thr Ser Ser
            580                 585                 590

Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser
        595                 600                 605

Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
    610                 615                 620

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
```

625 630 635 640

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
645 650 655

Ser Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly
660 665 670

Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu
675 680 685

Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
690 695 700

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
705 710 715 720

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Thr Pro
725 730 735

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
740 745 750

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
755 760 765

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
770 775 780

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
785 790 795 800

Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
805 810 815

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
820 825 830

Thr Ser Ser Thr Gly Ser Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
835 840 845

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
    850   855   860

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
865   870   875

<210> 1511
<211> 1318
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1511
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
1   5   10   15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
            20   25   30

Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
        35   40   45

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
    50   55   60

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
65   70   75   80

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                85   90   95

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu Pro
            100   105   110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        115   120   125

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130   135   140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu

```
145                 150                 155                 160

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    210                 215                 220

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
225                 230                 235                 240

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    290                 295                 300

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
305                 310                 315                 320

Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            340                 345                 350

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365
```

```
Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
385                 390                 395                 400

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Pro Glu Pro Thr Gly Pro Ala Pro Ser Gly Gly Ser Glu Pro Ala
        435                 440                 445

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    450                 455                 460

Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
465                 470                 475                 480

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
                485                 490                 495

Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
            500                 505                 510

Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        515                 520                 525

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly
    530                 535                 540

Ser Pro Thr Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser
545                 550                 555                 560

Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
                565                 570                 575

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu
            580                 585                 590
```

```
Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
        595                 600                 605

Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
    610                 615                 620

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
625                 630                 635                 640

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
                645                 650                 655

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
            660                 665                 670

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
        675                 680                 685

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    690                 695                 700

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
705                 710                 715                 720

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Pro Ser
                725                 730                 735

Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
            740                 745                 750

Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
        755                 760                 765

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
    770                 775                 780

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
785                 790                 795                 800

Ser Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                805                 810                 815
```

```
Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
            820                 825                 830

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
        835                 840                 845

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    850                 855                 860

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Ala Ser
865                 870                 875                 880

Gly Ala Pro Ser Thr Gly Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr
                885                 890                 895

Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr
            900                 905                 910

Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Glu Ser Ala
        915                 920                 925

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
    930                 935                 940

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
945                 950                 955                 960

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser
                965                 970                 975

Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
            980                 985                 990

Ser Pro Gly Thr Ser Thr Pro Glu  Ser Gly Ser Ala Ser  Pro Gly Thr
        995                 1000                1005

Ser Pro  Ser Gly Glu Ser Ser  Thr Ala Pro Gly Thr  Ser Pro Ser
    1010                1015                1020

Gly Glu  Ser Ser Thr Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
```

1025 1030 1035

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
1040 1045 1050

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
1055 1060 1065

Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu
1070 1075 1080

Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly
1085 1090 1095

Ser Ala Ser Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
1100 1105 1110

Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
1115 1120 1125

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
1130 1135 1140

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
1145 1150 1155

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
1160 1165 1170

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala
1175 1180 1185

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
1190 1195 1200

Ser Gly Ala Thr Gly Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
1205 1210 1215

Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala
1220 1225 1230

Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser
    1235   1240   1245

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly
    1250   1255   1260

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    1265   1270   1275

Ser Ser Ser Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
    1280   1285   1290

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
    1295   1300   1305

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    1310   1315

<210> 1512
<211> 924
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1512
Met Ala Glu Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser
1   5   10   15

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
            20   25   30

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
        35   40   45

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
    50   55   60

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
65   70   75   80

Thr Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly

```
                85                  90                  95

Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr
            100                 105                 110

Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro
        115                 120                 125

Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser
    130                 135                 140

Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu
145                 150                 155                 160

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
                165                 170                 175

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
            180                 185                 190

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        195                 200                 205

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
    210                 215                 220

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
225                 230                 235                 240

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
                245                 250                 255

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
            260                 265                 270

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        275                 280                 285

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    290                 295                 300
```

```
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
305                 310                 315                 320

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                325                 330                 335

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
            340                 345                 350

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
        355                 360                 365

Thr Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
    370                 375                 380

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
385                 390                 395                 400

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Ser Thr Glu Pro Ser
                405                 410                 415

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            420                 425                 430

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
        435                 440                 445

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
    450                 455                 460

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
465                 470                 475                 480

Pro Gly Ala Ser Ala Ser Gly Ala Pro Ser Thr Gly Gly Thr Ser Glu
                485                 490                 495

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
            500                 505                 510

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525
```

```
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
    530                 535                 540

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
545                 550                 555                 560

Ser Thr Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                565                 570                 575

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
            580                 585                 590

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        595                 600                 605

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    610                 615                 620

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Thr Ser
625                 630                 635                 640

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
                645                 650                 655

Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
        675                 680                 685

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
    690                 695                 700

Gly Ser Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
705                 710                 715                 720

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
                725                 730                 735

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            740                 745                 750
```

```
Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        755                 760                 765

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Thr
    770                 775                 780

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
785                 790                 795                 800

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                805                 810                 815

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
            820                 825                 830

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
        835                 840                 845

Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    850                 855                 860

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
865                 870                 875                 880

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Ser Glu Ser Ala Thr Pro
                885                 890                 895

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            900                 905                 910

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        915                 920
```

<210> 1513
<211> 913
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1513
Met Ala Glu Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Pro
1 5 10 15

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
20 25 30

Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
35 40 45

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
50 55 60

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
65 70 75 80

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
85 90 95

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
100 105 110

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
115 120 125

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
130 135 140

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
145 150 155 160

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
165 170 175

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
180 185 190

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
195 200 205

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
210 215 220

```
Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
225                 230                 235                 240


Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
                245                 250                 255


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            260                 265                 270


Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
        275                 280                 285


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    290                 295                 300


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
305                 310                 315                 320


Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                325                 330                 335


Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            340                 345                 350


Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        355                 360                 365


Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    370                 375                 380


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
385                 390                 395                 400


Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                405                 410                 415


Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            420                 425                 430


Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
```

```
        435                 440                 445

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
    450                 455                 460

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
465                 470                 475                 480

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                485                 490                 495

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            500                 505                 510

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
        515                 520                 525

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    530                 535                 540

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
545                 550                 555                 560

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
                565                 570                 575

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
            580                 585                 590

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
        595                 600                 605

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    610                 615                 620

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
625                 630                 635                 640

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
                645                 650                 655
```

```
Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
            660                 665                 670

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
        675                 680                 685

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
    690                 695                 700

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
705                 710                 715                 720

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
                725                 730                 735

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
            740                 745                 750

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
        755                 760                 765

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    770                 775                 780

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
785                 790                 795                 800

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                805                 810                 815

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu
            820                 825                 830

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
        835                 840                 845

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    850                 855                 860

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
865                 870                 875                 880
```

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
885 890 895

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
900 905 910

Pro

<210> 1514
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1514
Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr
1 5 10 15

Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
35 40 45

Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Glu Pro
50 55 60

Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Glu Pro Ala Thr Ser Gly
65 70 75 80

Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
85 90 95

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro
100 105 110

Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Thr Glu Pro Ser Glu
115 120 125

```
Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
    130                 135                 140

Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Thr
145                 150                 155                 160

Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
            180                 185                 190

Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Glu
        195                 200                 205

Pro Ser Thr Ser Glu Pro Gly Ala Gly Ser Gly Ala Ser Glu Pro Thr
    210                 215                 220

Ser Thr Glu Pro Gly Thr Ser Glu Pro Ser Thr Ser Glu Pro Gly Ala
225                 230                 235                 240

Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Glu Pro
                245                 250                 255

Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Pro Gly Ser Ala Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala
        275                 280                 285

Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro Gly Ser Glu Pro
    290                 295                 300

Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Thr Glu Pro Ser Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
                325                 330                 335

Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Thr
            340                 345                 350
```

```
Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly
        355                 360                 365

Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro
385                 390                 395                 400

Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr
                405                 410                 415

Ser Thr Glu Pro Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala
            420                 425                 430

Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr
    450                 455                 460

Ser Thr Glu Pro Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
465                 470                 475                 480

Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly
            500                 505                 510

Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
        515                 520                 525

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro
    530                 535                 540

Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Thr Glu Pro Ser Glu
545                 550                 555                 560

Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
                565                 570                 575
```

```
Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr
            580                 585                 590

Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr Glu Pro Ser Glu
        595                 600                 605

Pro Gly Ser Ala Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala
    610                 615                 620

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Glu Pro Ser Thr Ser
                645                 650                 655

Glu Pro Gly Ala Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
            660                 665                 670

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr
        675                 680                 685

Glu Pro Ser Glu Pro Gly Ser Ala Gly Thr Ser Thr Glu Pro Ser Glu
    690                 695                 700

Pro Gly Ser Ala Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
705                 710                 715                 720

Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro Gly Ser Glu Pro
                725                 730                 735

Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Glu Pro Ala Thr Ser Gly
            740                 745                 750

Thr Glu Pro Ser Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser
        755                 760                 765

Gly Ser Glu Pro Ala Thr Ser Gly Thr Glu Pro Ser Gly Thr Ser Glu
    770                 775                 780

Pro Ser Thr Ser Glu Pro Gly Ala Gly Ser Glu Pro Ala Thr Ser Gly
```

785 790 795 800

Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr Ser Thr Glu Pro
805 810 815

Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala Gly Ser Glu Pro
820 825 830

Ala Thr Ser Gly Thr Glu Pro Ser Gly Ser Gly Ala Ser Glu Pro Thr
835 840 845

Ser Thr Glu Pro Gly Thr Ser Thr Glu Pro Ser Glu Pro Gly Ser Ala
850 855 860

<210> 1515
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1515
Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly
1 5 10 15

Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser
20 25 30

Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly
35 40 45

Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly
50 55 60

Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser
65 70 75 80

Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly
85 90 95

Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly
100 105 110

```
Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser
        115                 120                 125

Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly
    130                 135                 140

Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly
145                 150                 155                 160

Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser
                165                 170                 175

Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly
            180                 185                 190

Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly
        195                 200                 205

Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser
    210                 215                 220

Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly
225                 230                 235                 240

Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly
                245                 250                 255

Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser
            260                 265                 270

Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly Gly Ser Gly Gly Glu Gly
        275                 280                 285


<210> 1516
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide
```

<400> 1516
Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly
1   5   10   15

Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly
            20   25   30

Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly
        35   40   45

Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly
    50   55   60

Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu
65   70   75   80

Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly
                85   90   95

Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu
            100   105   110

Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu
        115   120   125

Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly
    130   135   140

Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly
145   150   155   160

Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly
                165   170   175

Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly
            180   185   190

Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly
        195   200   205

Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu
    210   215   220

Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly
225 230 235 240

Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu
245 250 255

Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly Gly Glu
260 265 270

Gly Glu Gly Gly Gly Glu Gly Gly Glu Gly Glu Gly Gly Gly Glu Gly
275 280 285

<210> 1517
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1517
Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser
1 5 10 15

Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser
20 25 30

Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser
35 40 45

Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser
50 55 60

Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser
65 70 75 80

Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser
85 90 95

Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser
100 105 110

```
Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser
        115                 120                 125

Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser
    130                 135                 140

Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser
145                 150                 155                 160

Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser
                165                 170                 175

Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser
            180                 185                 190

Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser
        195                 200                 205

Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser
    210                 215                 220

Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser
225                 230                 235                 240

Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser
                245                 250                 255

Ser Glu Ser Ser Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser
            260                 265                 270

Ser Ser Glu Ser Ser Ser Glu Ser Ser Glu Ser Ser Ser Ser Glu Ser
        275                 280                 285


<210> 1518
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1518
```

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

Gly Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Gly Ser
            20                  25                  30

Glu Gly Ser Glu Gly Glu Gly Gly Ser Glu Gly Ser Glu Gly Glu Gly
        35                  40                  45

Gly Ser Glu Gly Ser Glu Gly Glu Gly Ser Gly Glu Gly Ser Glu Gly
    50                  55                  60

Glu Gly Gly Ser Glu Gly Ser Glu Gly Glu Gly Ser Gly Glu Gly Ser
65                  70                  75                  80

Glu Gly Glu Gly Ser Glu Gly Gly Ser Glu Gly Glu Gly Gly Ser Glu
                85                  90                  95

Gly Ser Glu Gly Glu Gly Ser Gly Glu Gly Ser Glu Gly Glu Gly Gly
            100                 105                 110

Glu Gly Gly Ser Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu
        115                 120                 125

Gly Ser Gly Glu Gly Ser Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu
    130                 135                 140

Gly Glu Gly Ser Gly Glu Gly Ser Glu Gly Glu Gly Ser Glu Gly Ser
145                 150                 155                 160

Gly Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Gly Ser
                165                 170                 175

Glu Gly Ser Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly
            180                 185                 190

Gly Glu Gly Ser Gly Glu Gly Glu Gly Ser Gly Glu Gly Ser Glu Gly
        195                 200                 205

Glu Gly Gly Gly Glu Gly Ser Glu Gly Glu Gly Ser Gly Glu Gly Gly
    210                 215                 220
```

Glu Gly Glu Gly Ser Glu Gly Gly Ser Glu Gly Glu Gly Gly Ser Glu
225 230 235 240

Gly Gly Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser
245 250 255

Glu Gly Gly Ser Glu Gly Glu Gly Ser Glu Gly Gly Ser Glu Gly Glu
260 265 270

Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu
275 280 285

<210> 1519
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1519
Gly Gly Lys Pro Gly Glu Gly Gly Lys Pro Glu Gly Gly Gly Gly Lys
1 5 10 15

Pro Gly Gly Lys Pro Glu Gly Glu Gly Glu Gly Lys Pro Gly Gly Lys
20 25 30

Pro Glu Gly Gly Gly Lys Pro Gly Gly Gly Glu Gly Gly Lys Pro Glu
35 40 45

Gly Gly Lys Pro Glu Gly Glu Gly Lys Pro Gly Gly Gly Glu Gly Lys
50 55 60

Pro Gly Gly Lys Pro Glu Gly Gly Gly Gly Lys Pro Glu Gly Glu Gly
65 70 75 80

Lys Pro Gly Gly Gly Gly Gly Lys Pro Gly Gly Lys Pro Glu Gly Glu
85 90 95

Gly Lys Pro Gly Gly Gly Glu Gly Gly Lys Pro Glu Gly Lys Pro Gly
100 105 110

```
Glu Gly Gly Glu Gly Lys Pro Gly Gly Lys Pro Glu Gly Gly Gly Glu
        115                 120                 125

Gly Lys Pro Gly Gly Gly Lys Pro Gly Glu Gly Gly Lys Pro Gly Glu
    130                 135                 140

Gly Lys Pro Gly Gly Gly Glu Gly Gly Lys Pro Glu Gly Gly Lys Pro
145                 150                 155                 160

Glu Gly Glu Gly Lys Pro Gly Gly Gly Glu Gly Lys Pro Gly Gly Lys
                165                 170                 175

Pro Gly Glu Gly Gly Lys Pro Glu Gly Gly Gly Glu Gly Lys Pro Gly
            180                 185                 190

Gly Lys Pro Gly Glu Gly Gly Glu Gly Lys Pro Gly Gly Gly Lys Pro
        195                 200                 205

Glu Gly Glu Gly Lys Pro Gly Gly Gly Lys Pro Gly Gly Gly Glu Gly
    210                 215                 220

Gly Lys Pro Glu Gly Glu Gly Lys Pro Gly Gly Lys Pro Glu Gly Gly
225                 230                 235                 240

Gly Glu Gly Lys Pro Gly Gly Lys Pro Glu Gly Gly Gly Lys Pro Glu
                245                 250                 255

Gly Gly Gly Glu Gly Lys Pro Gly Gly Gly Lys Pro Gly Glu Gly Gly
            260                 265                 270

Lys Pro Gly Glu Gly Glu Gly Lys Pro Gly Gly Lys Pro Glu Gly Glu
        275                 280                 285

Gly Lys Pro Gly Gly Glu Gly Gly Gly Lys Pro Glu Gly Lys Pro Gly
    290                 295                 300

Gly Gly Glu Gly Gly Lys Pro Glu Gly Gly Lys Pro Gly Glu Gly Gly
305                 310                 315                 320

Lys Pro Glu Gly Gly Lys Pro Gly Glu Gly Gly Glu Gly Lys Pro Gly
                325                 330                 335
```

```
Gly Gly Lys Pro Gly Glu Gly Gly Lys Pro Glu Gly Gly Gly Lys Pro
            340                 345                 350

Glu Gly Glu Gly Lys Pro Gly Gly Gly Gly Lys Pro Gly Glu Gly Gly
        355                 360                 365

Lys Pro Glu Gly Gly Lys Pro Glu Gly Gly Gly Glu Gly Lys Pro Gly
    370                 375                 380

Gly Gly Lys Pro Glu Gly Glu Gly Lys Pro Gly Gly Gly Glu Gly Lys
385                 390                 395                 400

Pro Gly Gly Lys Pro Glu Gly Gly Gly Gly Lys Pro Gly Glu Gly Gly
                405                 410                 415

Lys Pro Glu Gly Gly Lys Pro Gly Gly Glu Gly Gly Gly Lys Pro Glu
            420                 425                 430

Gly Glu Gly Lys Pro Gly Gly Lys Pro Gly Glu Gly Gly Gly Gly Lys
        435                 440                 445

Pro Gly Gly Lys Pro Glu Gly Glu Gly Lys Pro Gly Glu Gly Gly Glu
    450                 455                 460

Gly Lys Pro Gly Gly Lys Pro Glu Gly Gly Gly Glu Gly Lys Pro Gly
465                 470                 475                 480

Gly Lys Pro Glu Gly Gly Gly Glu Gly Lys Pro Gly Gly Gly Lys Pro
                485                 490                 495

Gly Glu Gly Gly Lys Pro Glu Gly Gly Gly Lys Pro Gly Glu Gly Gly
            500                 505                 510

Lys Pro Gly Glu Gly Gly Lys Pro Glu Gly Glu Gly Lys Pro Gly Gly
        515                 520                 525

Gly Glu Gly Lys Pro Gly Gly Lys Pro Gly Glu Gly Gly Lys Pro Glu
    530                 535                 540

Gly Gly Gly Glu Gly Lys Pro Gly Gly Lys Pro Gly Gly Glu Gly Gly
545                 550                 555                 560
```

```
Gly Lys Pro Glu Gly Gly Lys Pro Gly Glu Gly Gly Lys Pro Glu Gly
                565                 570                 575


<210> 1520
<211> 558
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1520
Gly Glu Gly Lys Pro Gly Gly Lys Pro Gly Ser Gly Gly Gly Lys Pro
1               5                   10                  15


Gly Glu Gly Gly Lys Pro Gly Ser Gly Glu Gly Lys Pro Gly Gly Lys
            20                  25                  30


Pro Gly Ser Gly Gly Ser Gly Lys Pro Gly Gly Lys Pro Gly Glu Gly
        35                  40                  45


Gly Lys Pro Glu Gly Gly Ser Gly Gly Lys Pro Gly Gly Gly Gly Lys
    50                  55                  60


Pro Gly Gly Lys Pro Gly Gly Glu Gly Ser Gly Lys Pro Gly Gly Lys
65                  70                  75                  80


Pro Glu Gly Gly Gly Lys Pro Glu Gly Gly Ser Gly Gly Lys Pro Gly
                85                  90                  95


Gly Lys Pro Glu Gly Gly Ser Gly Gly Lys Pro Gly Gly Lys Pro Gly
            100                 105                 110


Ser Gly Glu Gly Gly Lys Pro Gly Gly Gly Lys Pro Gly Gly Glu Gly
        115                 120                 125


Lys Pro Gly Ser Gly Lys Pro Gly Gly Glu Gly Ser Gly Lys Pro Gly
    130                 135                 140


Gly Lys Pro Glu Gly Gly Ser Gly Gly Lys Pro Gly Gly Lys Pro Glu
145                 150                 155                 160
```

```
Gly Gly Ser Gly Gly Lys Pro Gly Gly Ser Gly Lys Pro Gly Gly Lys
                165                 170                 175

Pro Gly Glu Gly Gly Lys Pro Glu Gly Gly Ser Gly Gly Lys Pro Gly
            180                 185                 190

Gly Ser Gly Lys Pro Gly Gly Lys Pro Glu Gly Gly Gly Ser Gly Lys
        195                 200                 205

Pro Gly Gly Lys Pro Gly Glu Gly Gly Lys Pro Gly Ser Gly Glu Gly
    210                 215                 220

Gly Lys Pro Gly Gly Gly Lys Pro Gly Gly Glu Gly Lys Pro Gly Ser
225                 230                 235                 240

Gly Lys Pro Gly Gly Glu Gly Ser Gly Lys Pro Gly Gly Lys Pro Gly
                245                 250                 255

Ser Gly Gly Glu Gly Lys Pro Gly Gly Lys Pro Glu Gly Gly Ser Gly
            260                 265                 270

Gly Lys Pro Gly Gly Gly Lys Pro Gly Gly Glu Gly Lys Pro Gly Ser
        275                 280                 285

Gly Gly Lys Pro Gly Glu Gly Gly Lys Pro Gly Ser Gly Gly Gly Lys
    290                 295                 300

Pro Gly Gly Lys Pro Gly Gly Glu Gly Glu Gly Lys Pro Gly Gly Lys
305                 310                 315                 320

Pro Gly Glu Gly Gly Lys Pro Gly Gly Glu Gly Ser Gly Lys Pro Gly
                325                 330                 335

Gly Gly Gly Lys Pro Gly Gly Lys Pro Gly Gly Glu Gly Gly Lys Pro
            340                 345                 350

Glu Gly Ser Gly Lys Pro Gly Gly Gly Ser Gly Lys Pro Gly Gly Lys
        355                 360                 365

Pro Glu Gly Gly Gly Gly Lys Pro Glu Gly Ser Gly Lys Pro Gly Gly
    370                 375                 380
```

```
Gly Gly Lys Pro Glu Gly Ser Gly Lys Pro Gly Gly Gly Lys Pro Glu
385                 390                 395                 400


Gly Gly Ser Gly Gly Lys Pro Gly Gly Ser Gly Lys Pro Gly Gly Lys
                405                 410                 415


Pro Gly Glu Gly Gly Gly Lys Pro Glu Gly Ser Gly Lys Pro Gly Gly
            420                 425                 430


Gly Ser Gly Lys Pro Gly Gly Lys Pro Glu Gly Gly Gly Lys Pro Glu
        435                 440                 445


Gly Gly Ser Gly Gly Lys Pro Gly Gly Lys Pro Glu Gly Gly Ser Gly
    450                 455                 460


Gly Lys Pro Gly Gly Lys Pro Gly Gly Glu Gly Ser Gly Lys Pro Gly
465                 470                 475                 480


Gly Lys Pro Gly Ser Gly Glu Gly Gly Lys Pro Gly Gly Lys Pro Gly
                485                 490                 495


Glu Gly Ser Gly Gly Lys Pro Gly Gly Lys Pro Glu Gly Gly Ser Gly
            500                 505                 510


Gly Lys Pro Gly Gly Ser Gly Lys Pro Gly Gly Lys Pro Glu Gly Gly
        515                 520                 525


Gly Ser Gly Lys Pro Gly Gly Lys Pro Gly Glu Gly Gly Lys Pro Gly
    530                 535                 540


Gly Glu Gly Ser Gly Lys Pro Gly Gly Ser Gly Lys Pro Gly
545                 550                 555
```

<210> 1521
<211> 577
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1521
Gly Gly Ser Gly Lys Pro Gly Lys Pro Gly Gly Ser Gly Ser Gly Lys
1   5   10   15

Pro Gly Ser Gly Lys Pro Gly Gly Gly Ser Gly Lys Pro Gly Ser Gly
            20   25   30

Lys Pro Gly Gly Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Gly
        35   40   45

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Gly Gly Gly Lys Pro
    50   55   60

Gly Ser Gly Ser Gly Lys Pro Gly Gly Gly Lys Pro Gly Gly Ser Gly
65   70   75   80

Gly Lys Pro Gly Gly Gly Ser Gly Lys Pro Gly Lys Pro Gly Ser Gly
                85   90   95

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Gly Gly Ser Gly Gly
            100   105   110

Lys Pro Gly Lys Pro Gly Ser Gly Gly Ser Gly Gly Lys Pro Gly Lys
        115   120   125

Pro Gly Ser Gly Gly Gly Ser Gly Lys Pro Gly Lys Pro Gly Ser Gly
    130   135   140

Gly Ser Gly Gly Lys Pro Gly Lys Pro Gly Ser Gly Gly Ser Gly Gly
145   150   155   160

Lys Pro Gly Lys Pro Gly Ser Gly Gly Ser Gly Lys Pro Gly Ser Gly
                165   170   175

Lys Pro Gly Gly Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser
            180   185   190

Gly Gly Ser Gly Lys Pro Gly Lys Pro Gly Ser Gly Gly Ser Gly Lys
        195   200   205

Pro Gly Ser Gly Lys Pro Gly Ser Gly Ser Gly Lys Pro Gly Ser Gly
    210   215   220

```
Lys Pro Gly Gly Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser
225                 230                 235                 240


Gly Gly Ser Gly Lys Pro Gly Lys Pro Gly Ser Gly Gly Gly Lys Pro
                245                 250                 255


Gly Ser Gly Ser Gly Lys Pro Gly Gly Gly Lys Pro Gly Ser Gly Ser
            260                 265                 270


Gly Lys Pro Gly Gly Gly Lys Pro Gly Gly Ser Gly Gly Lys Pro Gly
        275                 280                 285


Gly Ser Gly Gly Lys Pro Gly Lys Pro Gly Ser Gly Gly Gly Ser Gly
    290                 295                 300


Lys Pro Gly Lys Pro Gly Ser Gly Gly Gly Ser Gly Lys Pro Gly Lys
305                 310                 315                 320


Pro Gly Gly Ser Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Gly
                325                 330                 335


Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Gly Ser Gly
            340                 345                 350


Lys Pro Gly Lys Pro Gly Ser Gly Gly Ser Gly Gly Lys Pro Gly Lys
        355                 360                 365


Pro Gly Ser Gly Gly Gly Lys Pro Gly Ser Gly Ser Gly Lys Pro Gly
    370                 375                 380


Gly Gly Lys Pro Gly Ser Gly Ser Gly Lys Pro Gly Gly Gly Lys Pro
385                 390                 395                 400


Gly Ser Gly Ser Gly Lys Pro Gly Gly Gly Lys Pro Gly Ser Gly Ser
                405                 410                 415


Gly Lys Pro Gly Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Gly
            420                 425                 430


Gly Ser Gly Gly Lys Pro Gly Lys Pro Gly Ser Gly Gly Ser Gly Lys
```

435 440 445

Pro Gly Ser Gly Lys Pro Gly Ser Gly Gly Ser Gly Lys Pro Gly Lys
450 455 460

Pro Gly Gly Ser Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Gly
465 470 475 480

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Gly Gly Ser Gly Lys
485 490 495

Pro Gly Ser Gly Lys Pro Gly Gly Gly Ser Gly Lys Pro Gly Ser Gly
500 505 510

Lys Pro Gly Gly Gly Gly Lys Pro Gly Ser Gly Ser Gly Lys Pro Gly
515 520 525

Gly Ser Gly Gly Lys Pro Gly Lys Pro Gly Ser Gly Gly Ser Gly Gly
530 535 540

Lys Pro Gly Lys Pro Gly Ser Gly Gly Ser Gly Lys Pro Gly Ser Gly
545 550 555 560

Lys Pro Gly Gly Gly Ser Gly Gly Lys Pro Gly Lys Pro Gly Ser Gly
565 570 575

Gly

<210> 1522
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1522
Gly Glu Gly Ser Gly Glu Gly Ser Glu Gly Glu Gly Ser Glu Gly Ser
1 5 10 15

Gly Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Gly Ser
20 25 30

```
Glu Gly Ser Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly
        35                  40                  45

Gly Glu Gly Ser Gly Glu Gly Glu Gly Ser Gly Glu Gly Ser Glu Gly
    50                  55                  60

Glu Gly Gly Gly Glu Gly Ser Glu Gly Glu Gly Ser Gly Glu Gly Gly
65                  70                  75                  80

Glu Gly Glu Gly Ser Glu Gly Gly Ser Glu Gly Glu Gly Gly Ser Glu
                85                  90                  95

Gly Gly Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser
            100                 105                 110

Glu Gly Gly Ser Glu Gly Glu Gly Ser Glu Gly Gly Ser Glu Gly Glu
        115                 120                 125

Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu
    130                 135                 140

Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser Glu Gly Ser
145                 150                 155                 160

Gly Glu Gly Glu Gly Ser Glu Gly Gly Ser Glu Gly Glu Gly Gly Ser
                165                 170                 175

Glu Gly Ser Glu Gly Glu Gly Ser Gly Glu Gly Ser Glu Gly Glu Gly
            180                 185                 190

Gly Ser Glu Gly Ser Glu Gly Glu Gly Gly Gly Glu Gly Ser Glu Gly
        195                 200                 205

Glu Gly Ser Gly Glu Gly Ser Glu Gly Glu Gly Gly Ser Glu Gly Ser
    210                 215                 220

Glu Gly Glu Gly Gly Ser Glu Gly Ser Glu Gly Glu Gly Gly Glu Gly
225                 230                 235                 240

Ser Gly Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser
```

```
                245                 250                 255

Gly Glu Gly Ser Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu
            260                 265                 270

Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Gly Ser Glu Gly Ser Glu
        275                 280                 285

Gly Glu Gly Ser Gly Glu Gly Ser Glu Gly Glu Gly Ser Glu Gly Ser
    290                 295                 300

Gly Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Gly Ser
305                 310                 315                 320

Glu Gly Ser Glu Gly Glu Gly Gly Ser Glu Gly Ser Glu Gly Glu Gly
                325                 330                 335

Gly Ser Glu Gly Ser Glu Gly Glu Gly Gly Glu Gly Ser Gly Glu Gly
            340                 345                 350

Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser Gly Glu Gly Ser
        355                 360                 365

Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser Glu Gly
    370                 375                 380

Ser Gly Glu Gly Glu Gly Gly Ser Glu Gly Ser Glu Gly Glu Gly Ser
385                 390                 395                 400

Glu Gly Ser Gly Glu Gly Glu Gly Gly Glu Gly Ser Gly Glu Gly Glu
                405                 410                 415

Gly Ser Gly Glu Gly Ser Glu Gly Glu Gly Gly Gly Glu Gly Ser Glu
            420                 425                 430

Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser Glu Gly Ser
        435                 440                 445

Gly Glu Gly Glu Gly Ser Glu Gly Gly Ser Glu Gly Glu Gly Gly Ser
    450                 455                 460
```

Glu Gly Ser Glu Gly Glu Gly Ser Glu Gly Gly Ser Glu Gly Glu Gly
465 470 475 480

Ser Glu Gly Gly Ser Glu Gly Glu Gly Ser Glu Gly Ser Gly Glu Gly
485 490 495

Glu Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser Gly Glu Gly Ser
500 505 510

Glu Gly Glu Gly Gly Ser Glu Gly Gly Glu Gly Glu Gly Ser Glu Gly
515 520 525

Gly Ser Glu Gly Glu Gly Ser Glu Gly Gly Ser Glu Gly Glu Gly Gly
530 535 540

Glu Gly Ser Gly Glu Gly Glu Gly Gly Gly Glu Gly Ser Glu Gly Glu
545 550 555 560

Gly Ser Glu Gly Ser Gly Glu Gly Glu Gly Ser Gly Glu Gly Ser Glu
565 570 575

<210> 1523
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1523
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
1 5 10 15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
20 25 30

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
35 40 45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr

```
65                  70                  75                  80

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                85                  90                  95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
            100                 105                 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
        115                 120                 125

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
145                 150                 155                 160

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
                165                 170                 175

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            180                 185                 190

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
        195                 200                 205

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
    210                 215                 220

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
                245                 250                 255

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        275                 280                 285
```

<210> 1524
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1524
Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
1 5 10 15

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
20 25 30

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
35 40 45

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
50 55 60

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
65 70 75 80

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
85 90 95

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
100 105 110

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
115 120 125

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
130 135 140

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
145 150 155 160

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
165 170 175

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly

180 185 190

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
195 200 205

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
210 215 220

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
225 230 235 240

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
245 250 255

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
260 265 270

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
275 280 285

<210> 1525
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1525
Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly
1 5 10 15

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
20 25 30

Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
35 40 45

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu
50 55 60

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser
65 70 75 80

```
Glu Gly Gly Pro Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
                85                  90                  95

Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu
            100                 105                 110

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser
        115                 120                 125

Glu Gly Gly Pro Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
    130                 135                 140

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
145                 150                 155                 160

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
                165                 170                 175

Gly Ser Glu Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
            180                 185                 190

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly
        195                 200                 205

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
    210                 215                 220

Ser Gly Ser Ser Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
225                 230                 235                 240

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Gly Gly
                245                 250                 255

Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu
            260                 265                 270

Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
        275                 280                 285

Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro Gly Glu Ser Pro
```

```
    290                 295                 300

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
305                 310                 315                 320

Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser
                325                 330                 335

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro
            340                 345                 350

Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser
        355                 360                 365

Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
    370                 375                 380

Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu
385                 390                 395                 400

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
                405                 410                 415

Ser Gly Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
            420                 425                 430

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Glu Ser Pro
        435                 440                 445

Gly Gly Ser Ser Gly Ser Glu Ser Gly Glu Ser Pro Gly Gly Ser Ser
    450                 455                 460

Gly Ser Glu Ser Gly Ser Ser Glu Ser Gly Ser Ser Glu Gly Gly Pro
465                 470                 475                 480

Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser Gly Ser Ser Glu
                485                 490                 495

Ser Gly Ser Ser Glu Gly Gly Pro Gly Ser Gly Gly Glu Pro Ser Glu
            500                 505                 510
```

Ser Gly Ser Ser Gly Ser Gly Gly Glu Pro Ser Glu Ser Gly Ser Ser
515 520 525

Gly Glu Ser Pro Gly Gly Ser Ser Gly Ser Glu Ser Gly Ser Glu Gly
530 535 540

Ser Ser Gly Pro Gly Glu Ser Ser Gly Ser Ser Glu Ser Gly Ser Ser
545 550 555 560

Glu Gly Gly Pro Gly Ser Glu Gly Ser Ser Gly Pro Gly Glu Ser Ser
565 570 575

<210> 1526
<211> 577
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1526
Ala Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
1 5 10 15

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
20 25 30

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
35 40 45

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
50 55 60

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
65 70 75 80

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
85 90 95

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
100 105 110

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr

```
        115                 120                 125

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    130                 135                 140

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
145                 150                 155                 160

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
                165                 170                 175

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            180                 185                 190

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
        195                 200                 205

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
    210                 215                 220

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
225                 230                 235                 240

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
                245                 250                 255

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            260                 265                 270

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        275                 280                 285

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
    290                 295                 300

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
305                 310                 315                 320

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                325                 330                 335
```

```
Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
            340                 345                 350

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
        355                 360                 365

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    370                 375                 380

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
385                 390                 395                 400

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
                405                 410                 415

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            420                 425                 430

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
        435                 440                 445

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
    450                 455                 460

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
465                 470                 475                 480

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
                485                 490                 495

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            500                 505                 510

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
        515                 520                 525

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
    530                 535                 540

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
545                 550                 555                 560
```

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
565 570 575

Pro

<210> 1527
<211> 540
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1527
Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
1 5 10 15

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser
20 25 30

Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
35 40 45

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr
50 55 60

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
65 70 75 80

Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
85 90 95

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
100 105 110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
115 120 125

Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
130 135 140

```
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
145                 150                 155                 160

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
                165                 170                 175

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
            180                 185                 190

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
        195                 200                 205

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
    210                 215                 220

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
225                 230                 235                 240

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
                245                 250                 255

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
            260                 265                 270

Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
        275                 280                 285

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr
    290                 295                 300

Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly
305                 310                 315                 320

Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
                325                 330                 335

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
            340                 345                 350

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
        355                 360                 365
```

```
Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
    370                 375                 380

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
385                 390                 395                 400

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
                405                 410                 415

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
            420                 425                 430

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
        435                 440                 445

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly
    450                 455                 460

Ser Ala Ser Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
465                 470                 475                 480

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
                485                 490                 495

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu
            500                 505                 510

Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
        515                 520                 525

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
    530                 535                 540


<210> 1528
<211> 504
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1528
```

```
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1               5                   10                  15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
            20                  25                  30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        35                  40                  45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Asn Pro
    50                  55                  60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65                  70                  75                  80

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                85                  90                  95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            100                 105                 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145                 150                 155                 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165                 170                 175

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180                 185                 190

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Asn Pro
        195                 200                 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    210                 215                 220
```

```
Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                245                 250                 255


Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285


Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    290                 295                 300


Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335


Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            340                 345                 350


Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380


Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400


Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                405                 410                 415


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430


Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        435                 440                 445
```

```
Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460


Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480


Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                485                 490                 495


Gly Thr Ser Ser Thr Gly Ser Pro
            500


<210> 1529
<211> 816
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1529
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1               5                   10                  15


Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
            20                  25                  30


Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        35                  40                  45


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
    50                  55                  60


Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65                  70                  75                  80


Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                85                  90                  95


Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
            100                 105                 110
```

```
Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145                 150                 155                 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335
```

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
```

```
545                 550                 555                 560

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            580                 585                 590

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    610                 615                 620

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                645                 650                 655

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        675                 680                 685

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    690                 695                 700

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
                725                 730                 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765
```

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
    770   775   780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
785   790   795   800

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                805   810   815

<210> 1530
<211> 875
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<220>
<221> MOD_RES
<222> (430)..(432)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (443)..(446)
<223> Any amino acid

<400> 1530
Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro
1   5   10   15

Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
            20   25   30

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
        35   40   45

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr
    50   55   60

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
65   70   75   80

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
                85   90   95

```
Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
            100                 105                 110

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
        115                 120                 125

Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
    130                 135                 140

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
145                 150                 155                 160

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
                165                 170                 175

Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
            180                 185                 190

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr
        195                 200                 205

Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
    210                 215                 220

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
225                 230                 235                 240

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
                245                 250                 255

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Thr Pro Glu Ser Gly
            260                 265                 270

Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro
        275                 280                 285

Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
    290                 295                 300

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
```

```
305                 310                 315                 320

Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                325                 330                 335

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
            340                 345                 350

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
        355                 360                 365

Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
    370                 375                 380

Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser
385                 390                 395                 400

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
                405                 410                 415

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Pro Xaa Xaa Xaa
            420                 425                 430

Gly Ala Ser Ala Ser Gly Ala Pro Ser Thr Xaa Xaa Xaa Xaa Ser Glu
        435                 440                 445

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
    450                 455                 460

Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
465                 470                 475                 480

Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu
                485                 490                 495

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
            500                 505                 510

Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly
        515                 520                 525
```

```
Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser
    530                 535                 540

Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser
545                 550                 555                 560

Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
                565                 570                 575

Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu
            580                 585                 590

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
        595                 600                 605

Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
    610                 615                 620

Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro
625                 630                 635                 640

Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser
                645                 650                 655

Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
            660                 665                 670

Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Ser
        675                 680                 685

Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
    690                 695                 700

Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
705                 710                 715                 720

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser
                725                 730                 735

Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
            740                 745                 750
```

Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly
        755   760   765

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser
    770   775   780

Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
785   790   795   800

Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly
                805   810   815

Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser
            820   825   830

Gly Glu Ser Ser Thr Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
        835   840   845

Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    850   855   860

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
865   870   875

<210> 1531
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1531
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1   5   10   15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
            20   25   30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        35   40   45

```
Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    50                  55                  60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65                  70                  75                  80

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                85                  90                  95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            100                 105                 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145                 150                 155                 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165                 170                 175

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180                 185                 190

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        195                 200                 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    210                 215                 220

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                245                 250                 255

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270
```

```
Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    290                 295                 300

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            340                 345                 350

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                405                 410                 415

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        435                 440                 445

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                485                 490                 495
```

```
Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            500                 505                 510

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        515                 520                 525

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    530                 535                 540

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            580                 585                 590

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        595                 600                 605

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
625                 630                 635                 640

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                645                 650                 655

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            660                 665                 670

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        675                 680                 685

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    690                 695                 700

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
```

705 710 715 720

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
725 730 735

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
740 745 750

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
755 760 765

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
770 775 780

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
785 790 795 800

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
805 810 815

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
820 825 830

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
835 840 845

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
850 855 860

<210> 1532
<211> 868
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1532
Gly Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
1 5 10 15

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
20 25 30

```
Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
        35                  40                  45

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    50                  55                  60

Gly Ser Asn Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
65                  70                  75                  80

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
                85                  90                  95

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            100                 105                 110

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
        115                 120                 125

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    130                 135                 140

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
145                 150                 155                 160

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                165                 170                 175

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
            180                 185                 190

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        195                 200                 205

Gly Ser Asn Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
    210                 215                 220

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala
225                 230                 235                 240

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
```

```
                245                 250                 255

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
            260                 265                 270

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        275                 280                 285

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
    290                 295                 300

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
305                 310                 315                 320

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                325                 330                 335

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            340                 345                 350

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
        355                 360                 365

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    370                 375                 380

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
385                 390                 395                 400

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
                405                 410                 415

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            420                 425                 430

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        435                 440                 445

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
    450                 455                 460
```

```
Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
465                 470                 475                 480

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                485                 490                 495

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
            500                 505                 510

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        515                 520                 525

Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    530                 535                 540

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
545                 550                 555                 560

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                565                 570                 575

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            580                 585                 590

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
        595                 600                 605

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    610                 615                 620

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
625                 630                 635                 640

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
                645                 650                 655

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
            660                 665                 670

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        675                 680                 685
```

```
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
    690                 695                 700

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
705                 710                 715                 720

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                725                 730                 735

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
            740                 745                 750

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        755                 760                 765

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    770                 775                 780

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
785                 790                 795                 800

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                805                 810                 815

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            820                 825                 830

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        835                 840                 845

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    850                 855                 860

Thr Gly Ser Pro
865
```

<210> 1533
<211> 875
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1533

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
1               5                  10                  15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
            20                  25                  30

Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
        35                  40                  45

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
    50                  55                  60

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
65                  70                  75                  80

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                85                  90                  95

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu Pro
            100                 105                 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
145                 150                 155                 160

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
        195                 200                 205
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    210                 215                 220

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
225                 230                 235                 240

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    290                 295                 300

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
305                 310                 315                 320

Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            340                 345                 350

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
385                 390                 395                 400

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430
```

```
Gly Ala Ser Ala Ser Gly Ala Pro Ser Thr Gly Gly Thr Ser Glu Ser
        435                 440                 445

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    450                 455                 460

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
465                 470                 475                 480

Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu
                485                 490                 495

Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
            500                 505                 510

Thr Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
        515                 520                 525

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser
    530                 535                 540

Ala Ser Thr Gly Thr Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
545                 550                 555                 560

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
                565                 570                 575

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Thr Ser Ser
            580                 585                 590

Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser
        595                 600                 605

Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
    610                 615                 620

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala
625                 630                 635                 640

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
```

```
                645                 650                 655

Ser Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly
            660                 665                 670

Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu
        675                 680                 685

Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    690                 695                 700

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
705                 710                 715                 720

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Thr Pro
                725                 730                 735

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
            740                 745                 750

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        755                 760                 765

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
    770                 775                 780

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
785                 790                 795                 800

Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                805                 810                 815

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
            820                 825                 830

Thr Ser Ser Thr Gly Ser Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
        835                 840                 845

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
    850                 855                 860
```

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
865 870 875

<210> 1534
<211> 913
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1534
Met Ala Glu Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Pro
1 5 10 15

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
20 25 30

Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
35 40 45

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
50 55 60

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
65 70 75 80

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
85 90 95

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
100 105 110

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
115 120 125

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
130 135 140

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
145 150 155 160

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr

```
                165                 170                 175

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            180                 185                 190

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro
        195                 200                 205

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
    210                 215                 220

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
225                 230                 235                 240

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
                245                 250                 255

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
            260                 265                 270

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
        275                 280                 285

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    290                 295                 300

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
305                 310                 315                 320

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                325                 330                 335

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
            340                 345                 350

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
        355                 360                 365

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
    370                 375                 380
```

```
Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
385                 390                 395                 400

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
                405                 410                 415

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            420                 425                 430

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        435                 440                 445

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
    450                 455                 460

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
465                 470                 475                 480

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
                485                 490                 495

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
            500                 505                 510

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
        515                 520                 525

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    530                 535                 540

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
545                 550                 555                 560

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
                565                 570                 575

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro
            580                 585                 590

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
        595                 600                 605
```

```
Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    610                 615                 620

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
625                 630                 635                 640

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
                645                 650                 655

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
            660                 665                 670

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
        675                 680                 685

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
    690                 695                 700

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
705                 710                 715                 720

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser
                725                 730                 735

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
            740                 745                 750

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
        755                 760                 765

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    770                 775                 780

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
785                 790                 795                 800

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                805                 810                 815

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu
            820                 825                 830
```

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
        835   840   845

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
    850   855   860

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
865   870   875   880

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
                885   890   895

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            900   905   910

Pro

<210> 1535
<211> 924
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1535
Met Ala Glu Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ala Ser
1   5   10   15

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
            20   25   30

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
        35   40   45

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
    50   55   60

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
65   70   75   80

```
Thr Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly
                85                  90                  95

Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr
            100                 105                 110

Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro
        115                 120                 125

Ser Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser
    130                 135                 140

Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu
145                 150                 155                 160

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
                165                 170                 175

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu
            180                 185                 190

Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
        195                 200                 205

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
    210                 215                 220

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
225                 230                 235                 240

Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
                245                 250                 255

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
            260                 265                 270

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
        275                 280                 285

Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    290                 295                 300
```

```
Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
305                 310                 315                 320

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly
                325                 330                 335

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
            340                 345                 350

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro
        355                 360                 365

Thr Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
    370                 375                 380

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
385                 390                 395                 400

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Ser Thr Glu Pro Ser
                405                 410                 415

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
            420                 425                 430

Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
        435                 440                 445

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
    450                 455                 460

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
465                 470                 475                 480

Pro Gly Ala Ser Ala Ser Gly Ala Pro Ser Thr Gly Gly Thr Ser Glu
                485                 490                 495

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
            500                 505                 510

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
```

```
        515                 520                 525

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser
    530                 535                 540

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
545                 550                 555                 560

Ser Thr Ala Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                565                 570                 575

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
            580                 585                 590

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        595                 600                 605

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    610                 615                 620

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Thr Ser
625                 630                 635                 640

Ser Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Ser Thr Ala Glu
                645                 650                 655

Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
        675                 680                 685

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
    690                 695                 700

Gly Ser Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
705                 710                 715                 720

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
                725                 730                 735
```

Glu Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
740 745 750

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
755 760 765

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Ser Thr
770 775 780

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
785 790 795 800

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
805 810 815

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
820 825 830

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
835 840 845

Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
850 855 860

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
865 870 875 880

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Ser Glu Ser Ala Thr Pro
885 890 895

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
900 905 910

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
915 920

<210> 1536
<211> 1318
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<400> 1536

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
1               5                   10                  15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
            20                  25                  30

Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
        35                  40                  45

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser
    50                  55                  60

Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser
65                  70                  75                  80

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                85                  90                  95

Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser Glu Pro
            100                 105                 110

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
145                 150                 155                 160

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
        195                 200                 205
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
    210                 215                 220

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
225                 230                 235                 240

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            260                 265                 270

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    290                 295                 300

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
305                 310                 315                 320

Ser Thr Glu Glu Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
                325                 330                 335

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            340                 345                 350

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
385                 390                 395                 400

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430
```

```
Gly Pro Glu Pro Thr Gly Pro Ala Pro Ser Gly Gly Ser Glu Pro Ala
        435                 440                 445

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    450                 455                 460

Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
465                 470                 475                 480

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
                485                 490                 495

Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
            500                 505                 510

Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
        515                 520                 525

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly
    530                 535                 540

Ser Pro Thr Ser Thr Glu Glu Gly Ser Thr Ser Ser Thr Ala Glu Ser
545                 550                 555                 560

Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
                565                 570                 575

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Glu
            580                 585                 590

Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
        595                 600                 605

Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
    610                 615                 620

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
625                 630                 635                 640

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
                645                 650                 655
```

```
Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
            660                 665                 670

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
        675                 680                 685

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    690                 695                 700

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
705                 710                 715                 720

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Pro Ser
                725                 730                 735

Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser
            740                 745                 750

Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
        755                 760                 765

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
    770                 775                 780

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
785                 790                 795                 800

Ser Ala Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
                805                 810                 815

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
            820                 825                 830

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
        835                 840                 845

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
    850                 855                 860

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Ala Ser
```

865 870 875 880

Gly Ala Pro Ser Thr Gly Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr
885 890 895

Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr
900 905 910

Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Glu Ser Ala
915 920 925

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
930 935 940

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
945 950 955 960

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser
965 970 975

Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
980 985 990

Ser Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr
995 1000 1005

Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser
1010 1015 1020

Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
1025 1030 1035

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
1040 1045 1050

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
1055 1060 1065

Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu
1070 1075 1080

```
Ser Pro  Ser Gly Thr Ala Pro  Gly Thr Ser Thr Pro  Glu Ser Gly
    1085                 1090                 1095

Ser Ala  Ser Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1100                 1105                 1110

Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1115                 1120                 1125

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1130                 1135                 1140

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1145                 1150                 1155

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1160                 1165                 1170

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala
    1175                 1180                 1185

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1190                 1195                 1200

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Thr Ser Glu  Ser Pro Ser
    1205                 1210                 1215

Gly Thr  Ala Pro Gly Thr Ser  Pro Ser Gly Glu Ser  Ser Thr Ala
    1220                 1225                 1230

Pro Gly  Ser Thr Ser Ser Thr  Ala Glu Ser Pro Gly  Pro Gly Ser
    1235                 1240                 1245

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1250                 1255                 1260

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1265                 1270                 1275

Ser Ser  Ser Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1280                 1285                 1290
```

Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
    1295   1300   1305

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    1310   1315

<210> 1537
<211> 1874
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1537
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Gly
        115   120   125

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
    130   135   140

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
145                 150                 155                 160

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                165                 170                 175

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            180                 185                 190

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
        195                 200                 205

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    210                 215                 220

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
225                 230                 235                 240

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
                245                 250                 255

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            260                 265                 270

Gly Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys
        275                 280                 285

Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr
    290                 295                 300

Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly
305                 310                 315                 320

Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln
                325                 330                 335

Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys
            340                 345                 350

Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala
        355                 360                 365
```

```
Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val
    370                 375                 380

Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr
385                 390                 395                 400

Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe
                405                 410                 415

Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu
            420                 425                 430

Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp
        435                 440                 445

Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp
    450                 455                 460

Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln
465                 470                 475                 480

Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu
                485                 490                 495

Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro
            500                 505                 510

Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp
        515                 520                 525

Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu
    530                 535                 540

Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn
545                 550                 555                 560

Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala
                565                 570                 575

Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser
            580                 585                 590
```

```
Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu
        595                 600                 605

Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His
    610                 615                 620

Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly
625                 630                 635                 640

Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys
                645                 650                 655

Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro
            660                 665                 670

Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp
        675                 680                 685

Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser
    690                 695                 700

Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile
705                 710                 715                 720

Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn
                725                 730                 735

Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro
            740                 745                 750

Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe
        755                 760                 765

Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr
    770                 775                 780

Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser
785                 790                 795                 800

Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu
```

```
                805                 810                 815

Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly
            820                 825                 830

Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met
        835                 840                 845

Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr
    850                 855                 860

Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn
865                 870                 875                 880

Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Gly Thr Ser Glu
                885                 890                 895

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
            900                 905                 910

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        915                 920                 925

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
    930                 935                 940

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
945                 950                 955                 960

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                965                 970                 975

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            980                 985                 990

Ala Thr Ser Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
        995                 1000                1005

Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    1010                1015                1020
```

```
Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1025                1030                1035

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser
    1040                1045                1050

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1055                1060                1065

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1070                1075                1080

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1085                1090                1095

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Pro Ala Gly
    1100                1105                1110

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1115                1120                1125

Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1130                1135                1140

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1145                1150                1155

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu
    1160                1165                1170

Pro Ser  Glu Gly Ser Ala Pro  Gly Pro Pro Val Leu  Lys Arg His
    1175                1180                1185

Gln Arg  Glu Ile Thr Arg Thr  Thr Leu Gln Ser Asp  Gln Glu Glu
    1190                1195                1200

Ile Asp  Tyr Asp Asp Thr Ile  Ser Val Glu Met Lys  Lys Glu Asp
    1205                1210                1215

Phe Asp  Ile Tyr Asp Glu Asp  Glu Asn Gln Ser Pro  Arg Ser Phe
    1220                1225                1230
```

```
Gln Lys  Lys Thr Arg His Tyr  Phe Ile Ala Ala Val  Glu Arg Leu
    1235                1240                1245

Trp Asp  Tyr Gly Met Ser Ser  Ser Pro His Val Leu  Arg Asn Arg
    1250                1255                1260

Ala Gln  Ser Gly Ser Val Pro  Gln Phe Lys Lys Val  Val Phe Gln
    1265                1270                1275

Glu Phe  Thr Asp Gly Ser Phe  Thr Gln Pro Leu Tyr  Arg Gly Glu
    1280                1285                1290

Leu Asn  Glu His Leu Gly Leu  Leu Gly Pro Tyr Ile  Arg Ala Glu
    1295                1300                1305

Val Glu  Asp Asn Ile Met Val  Thr Phe Arg Asn Gln  Ala Ser Arg
    1310                1315                1320

Pro Tyr  Ser Phe Tyr Ser Ser  Leu Ile Ser Tyr Glu  Glu Asp Gln
    1325                1330                1335

Arg Gln  Gly Ala Glu Pro Arg  Lys Asn Phe Val Lys  Pro Asn Glu
    1340                1345                1350

Thr Lys  Thr Tyr Phe Trp Lys  Val Gln His His Met  Ala Pro Thr
    1355                1360                1365

Lys Asp  Glu Phe Asp Cys Lys  Ala Trp Ala Tyr Phe  Ser Asp Val
    1370                1375                1380

Asp Leu  Glu Lys Asp Val His  Ser Gly Leu Ile Gly  Pro Leu Leu
    1385                1390                1395

Val Cys  His Thr Asn Thr Leu  Asn Pro Ala His Gly  Arg Gln Val
    1400                1405                1410

Thr Val  Gln Glu Phe Ala Leu  Phe Phe Thr Ile Phe  Asp Glu Thr
    1415                1420                1425

Lys Ser  Trp Tyr Phe Thr Glu  Asn Met Glu Arg Asn  Cys Arg Ala
    1430                1435                1440
```

```
Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr Phe Lys  Glu Asn Tyr
    1445                1450                1455

Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met Asp Thr  Leu Pro Gly
    1460                1465                1470

Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg Trp Tyr  Leu Leu Ser
    1475                1480                1485

Met Gly  Ser Asn Glu Asn Ile  His Ser Ile His Phe  Ser Gly His
    1490                1495                1500

Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr Lys Met  Ala Leu Tyr
    1505                1510                1515

Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val Glu Met  Leu Pro Ser
    1520                1525                1530

Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu Ile Gly  Glu His Leu
    1535                1540                1545

His Ala  Gly Met Ser Thr Leu  Phe Leu Val Tyr Ser  Asn Lys Cys
    1550                1555                1560

Gln Thr  Pro Leu Gly Met Ala  Ser Gly His Ile Arg  Asp Phe Gln
    1565                1570                1575

Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp Ala Pro  Lys Leu Ala
    1580                1585                1590

Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala Trp Ser  Thr Lys Glu
    1595                1600                1605

Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu Ala Pro  Met Ile Ile
    1610                1615                1620

His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln Lys Phe  Ser Ser Leu
    1625                1630                1635

Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser Leu Asp  Gly Lys Lys
```

```
    1640                1645                1650

Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly Thr Leu  Met Val Phe
    1655                1660                1665

Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys His Asn  Ile Phe Asn
    1670                1675                1680

Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu His Pro  Thr His Tyr
    1685                1690                1695

Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu Met Gly  Cys Asp Leu
    1700                1705                1710

Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu Ser Lys  Ala Ile Ser
    1715                1720                1725

Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe Thr Asn  Met Phe Ala
    1730                1735                1740

Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His Leu Gln  Gly Arg Ser
    1745                1750                1755

Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro Lys Glu  Trp Leu Gln
    1760                1765                1770

Val Asp  Phe Gln Lys Thr Met  Lys Val Thr Gly Val  Thr Thr Gln
    1775                1780                1785

Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr Val Lys  Glu Phe Leu
    1790                1795                1800

Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp Thr Leu  Phe Phe Gln
    1805                1810                1815

Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn Gln Asp  Ser Phe Thr
    1820                1825                1830

Pro Val  Val Asn Ser Leu Asp  Pro Pro Leu Leu Thr  Arg Tyr Leu
    1835                1840                1845
```

Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met
    1850   1855   1860

Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr
    1865   1870

<210> 1538
<211> 2162
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1538
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser

```
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365
```

```
Ile Gln Ile Arg Ser Val Ala Gly Gly Ser Pro Ala Gly Ser Pro Thr
    370                 375                 380

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
385                 390                 395                 400

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
                405                 410                 415

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
            420                 425                 430

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
        435                 440                 445

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    450                 455                 460

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
465                 470                 475                 480

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
                485                 490                 495

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
            500                 505                 510

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        515                 520                 525

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    530                 535                 540

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
545                 550                 555                 560

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
                565                 570                 575

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            580                 585                 590
```

```
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        595                 600                 605

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu
    610                 615                 620

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
625                 630                 635                 640

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
                645                 650                 655

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
            660                 665                 670

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        675                 680                 685

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
    690                 695                 700

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
705                 710                 715                 720

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                725                 730                 735

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            740                 745                 750

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        755                 760                 765

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    770                 775                 780

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
785                 790                 795                 800

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
                805                 810                 815
```

```
Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
            820                 825                 830

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        835                 840                 845

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    850                 855                 860

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
865                 870                 875                 880

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
                885                 890                 895

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr
            900                 905                 910

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        915                 920                 925

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
    930                 935                 940

Glu Pro Ser Glu Gly Ser Ala Pro Gly Lys Lys His Pro Lys Thr Trp
945                 950                 955                 960

Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu
                965                 970                 975

Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn
            980                 985                 990

Gly Pro Gln Arg Ile Gly Arg Lys  Tyr Lys Lys Val Arg  Phe Met Ala
        995                 1000                1005

Tyr Thr  Asp Glu Thr Phe Lys  Thr Arg Glu Ala Ile  Gln His Glu
    1010                1015                1020

Ser Gly  Ile Leu Gly Pro Leu  Leu Tyr Gly Glu Val  Gly Asp Thr
```

```
    1025                1030                1035

Leu Leu  Ile Ile Phe Lys Asn  Gln Ala Ser Arg Pro  Tyr Asn Ile
    1040                1045                1050

Tyr Pro  His Gly Ile Thr Asp  Val Arg Pro Leu Tyr  Ser Arg Arg
    1055                1060                1065

Leu Pro  Lys Gly Val Lys His  Leu Lys Asp Phe Pro  Ile Leu Pro
    1070                1075                1080

Gly Glu  Ile Phe Lys Tyr Lys  Trp Thr Val Thr Val  Glu Asp Gly
    1085                1090                1095

Pro Thr  Lys Ser Asp Pro Arg  Cys Leu Thr Arg Tyr  Tyr Ser Ser
    1100                1105                1110

Phe Val  Asn Met Glu Arg Asp  Leu Ala Ser Gly Leu  Ile Gly Pro
    1115                1120                1125

Leu Leu  Ile Cys Tyr Lys Glu  Ser Val Asp Gln Arg  Gly Asn Gln
    1130                1135                1140

Ile Met  Ser Asp Lys Arg Asn  Val Ile Leu Phe Ser  Val Phe Asp
    1145                1150                1155

Glu Asn  Arg Ser Trp Tyr Leu  Thr Glu Asn Ile Gln  Arg Phe Leu
    1160                1165                1170

Pro Asn  Pro Ala Gly Val Gln  Leu Glu Asp Pro Glu  Phe Gln Ala
    1175                1180                1185

Ser Asn  Ile Met His Ser Ile  Asn Gly Tyr Val Phe  Asp Ser Leu
    1190                1195                1200

Gln Leu  Ser Val Cys Leu His  Glu Val Ala Tyr Trp  Tyr Ile Leu
    1205                1210                1215

Ser Ile  Gly Ala Gln Thr Asp  Phe Leu Ser Val Phe  Phe Ser Gly
    1220                1225                1230
```

```
Tyr Thr  Phe Lys His Lys Met  Val Tyr Glu Asp Thr  Leu Thr Leu
    1235                1240                1245

Phe Pro  Phe Ser Gly Glu Thr  Val Phe Met Ser Met  Glu Asn Pro
    1250                1255                1260

Gly Leu  Trp Ile Leu Gly Cys  His Asn Ser Asp Phe  Arg Asn Arg
    1265                1270                1275

Gly Met  Thr Ala Leu Leu Lys  Val Ser Ser Cys Asp  Lys Asn Thr
    1280                1285                1290

Gly Asp  Tyr Tyr Glu Asp Ser  Tyr Glu Asp Ile Ser  Ala Tyr Leu
    1295                1300                1305

Leu Ser  Lys Asn Asn Ala Ile  Glu Pro Arg Ser Phe  Ser Gln Asn
    1310                1315                1320

Gly Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1325                1330                1335

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1340                1345                1350

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1355                1360                1365

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1370                1375                1380

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1385                1390                1395

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    1400                1405                1410

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1415                1420                1425

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1430                1435                1440
```

```
Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    1445                1450                1455

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Pro  Pro Val Leu
    1460                1465                1470

Lys Arg  His Gln Arg Glu Ile  Thr Arg Thr Thr Leu  Gln Ser Asp
    1475                1480                1485

Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile Ser Val  Glu Met Lys
    1490                1495                1500

Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp Glu Asn  Gln Ser Pro
    1505                1510                1515

Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr Phe Ile  Ala Ala Val
    1520                1525                1530

Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser Ser Pro  His Val Leu
    1535                1540                1545

Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro Gln Phe  Lys Lys Val
    1550                1555                1560

Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe Thr Gln  Pro Leu Tyr
    1565                1570                1575

Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu Leu Gly  Pro Tyr Ile
    1580                1585                1590

Arg Ala  Glu Val Glu Asp Asn  Ile Met Val Thr Phe  Arg Asn Gln
    1595                1600                1605

Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser Leu Ile  Ser Tyr Glu
    1610                1615                1620

Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg Lys Asn  Phe Val Lys
    1625                1630                1635

Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys Val Gln  His His Met
    1640                1645                1650
```

```
Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe
    1655                1660                1665

Ser Asp  Val Asp Leu Glu Lys  Asp Val His Ser Gly  Leu Ile Gly
    1670                1675                1680

Pro Leu  Leu Val Cys His Thr  Asn Thr Leu Asn Pro  Ala His Gly
    1685                1690                1695

Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
    1700                1705                1710

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    1715                1720                1725

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    1730                1735                1740

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    1745                1750                1755

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    1760                1765                1770

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    1775                1780                1785

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    1790                1795                1800

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
    1805                1810                1815

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    1820                1825                1830

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
    1835                1840                1845

Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
```

```
    1850                1855                1860

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    1865                1870                1875

Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    1880                1885                1890

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    1895                1900                1905

Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    1910                1915                1920

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    1925                1930                1935

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    1940                1945                1950

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    1955                1960                1965

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    1970                1975                1980

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    1985                1990                1995

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    2000                2005                2010

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    2015                2020                2025

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    2030                2035                2040

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    2045                2050                2055
```

Trp Leu Gln Val Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val
    2060   2065   2070

Thr Thr Gln Gly Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys
    2075   2080   2085

Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu
    2090   2095   2100

Phe Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp
    2105   2110   2115

Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr
    2120   2125   2130

Arg Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala
    2135   2140   2145

Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr
    2150   2155   2160

<210> 1539
<211> 2449
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1539
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val

```
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
```

```
Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Gly Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly
            900                 905                 910

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser
        915                 920                 925

Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser
    930                 935                 940

Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly
```

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945                 950                 955                 960

Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser
                965                 970                 975

Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser
            980                 985                 990

Ala Ser Pro Gly Ser Thr Ser Ser  Thr Ala Glu Ser Pro  Gly Pro Gly
        995                 1000                1005

Thr Ser  Pro Ser Gly Glu Ser  Ser Thr Ala Pro Gly  Thr Ser Pro
    1010                1015                1020

Ser Gly  Glu Ser Ser Thr Ala  Pro Gly Thr Ser Pro  Ser Gly Glu
    1025                1030                1035

Ser Ser  Thr Ala Pro Gly Glu  Glu Asp Gln Arg Gln  Gly Ala Glu
    1040                1045                1050

Pro Arg  Lys Asn Phe Val Lys  Pro Asn Glu Thr Lys  Thr Tyr Phe
    1055                1060                1065

Trp Lys  Val Gln His His Met  Ala Pro Thr Lys Asp  Glu Phe Asp
    1070                1075                1080

Cys Lys  Ala Trp Ala Tyr Phe  Ser Asp Val Asp Leu  Glu Lys Asp
    1085                1090                1095

Val His  Ser Gly Leu Ile Gly  Pro Leu Leu Val Cys  His Thr Asn
    1100                1105                1110

Thr Leu  Asn Pro Ala His Gly  Arg Gln Val Thr Val  Gln Glu Phe
    1115                1120                1125

Ala Leu  Phe Phe Thr Ile Phe  Asp Glu Thr Lys Ser  Trp Tyr Phe
    1130                1135                1140

Thr Glu  Asn Met Glu Arg Asn  Cys Arg Ala Pro Cys  Asn Ile Gln
    1145                1150                1155
```

```
Met Glu  Asp Pro Thr Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile
    1160                1165                1170

Asn Gly  Tyr Ile Met Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln
    1175                1180                1185

Asp Gln  Arg Ile Arg Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu
    1190                1195                1200

Asn Ile  His Ser Ile His Phe  Ser Gly His Val Phe  Thr Val Arg
    1205                1210                1215

Lys Lys  Glu Glu Tyr Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly
    1220                1225                1230

Val Phe  Glu Thr Val Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp
    1235                1240                1245

Arg Val  Glu Cys Leu Ile Gly  Glu His Leu His Ala  Gly Met Ser
    1250                1255                1260

Thr Leu  Phe Leu Val Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly
    1265                1270                1275

Met Ala  Ser Gly His Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly
    1280                1285                1290

Gln Tyr  Gly Gln Trp Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser
    1295                1300                1305

Gly Ser  Ile Asn Ala Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile
    1310                1315                1320

Lys Val  Asp Leu Leu Ala Pro  Met Ile Ile His Gly  Ile Lys Thr
    1325                1330                1335

Gln Gly  Ala Arg Gln Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe
    1340                1345                1350

Ile Ile  Met Tyr Ser Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg
    1355                1360                1365
```

```
Gly Asn  Ser Thr Gly Thr Leu  Met Val Phe Phe Gly  Asn Val Asp
    1370                1375                1380

Ser Ser  Gly Ile Lys His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala
    1385                1390                1395

Arg Tyr  Ile Arg Leu His Pro  Thr His Tyr Ser Ile  Arg Ser Thr
    1400                1405                1410

Leu Arg  Met Glu Leu Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met
    1415                1420                1425

Pro Leu  Gly Met Glu Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr
    1430                1435                1440

Ala Ser  Ser Tyr Phe Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser
    1445                1450                1455

Lys Ala  Arg Leu His Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro
    1460                1465                1470

Gln Val  Asn Asn Pro Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys
    1475                1480                1485

Thr Met  Lys Val Thr Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu
    1490                1495                1500

Leu Thr  Ser Met Tyr Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln
    1505                1510                1515

Asp Gly  His Gln Trp Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys
    1520                1525                1530

Val Phe  Gln Gly Asn Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser
    1535                1540                1545

Leu Asp  Pro Pro Leu Leu Thr  Arg Tyr Leu Arg Ile  His Pro Gln
    1550                1555                1560

Ser Trp  Val His Gln Ile Ala  Leu Arg Met Glu Val  Leu Gly Cys
    1565                1570                1575
```

```
Glu Ala  Gln Asp Leu Tyr Gly  Gly Ser Pro Ala Gly  Ser Pro Thr
    1580                1585                1590

Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1595                1600                1605

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1610                1615                1620

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    1625                1630                1635

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1640                1645                1650

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1655                1660                1665

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1670                1675                1680

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Pro Ala Gly
    1685                1690                1695

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1700                1705                1710

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1715                1720                1725

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1730                1735                1740

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    1745                1750                1755

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1760                1765                1770

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
```

```
    1775                1780                1785

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1790                1795                1800

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    1805                1810                1815

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1820                1825                1830

Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1850                1855                1860

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly
    1865                1870                1875

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1880                1885                1890

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    1910                1915                1920

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1925                1930                1935

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1940                1945                1950

Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1955                1960                1965

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980
```

```
Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    1985                 1990                 1995

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2000                 2005                 2010

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2015                 2020                 2025

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr
    2030                 2035                 2040

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2045                 2050                 2055

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2060                 2065                 2070

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2075                 2080                 2085

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2090                 2095                 2100

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2105                 2110                 2115

Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr
    2120                 2125                 2130

Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2135                 2140                 2145

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2150                 2155                 2160

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2165                 2170                 2175

Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2180                 2185                 2190
```

```
Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    2195                 2200                 2205

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2210                 2215                 2220

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly
    2225                 2230                 2235

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    2240                 2245                 2250

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    2255                 2260                 2265

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2270                 2275                 2280

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2285                 2290                 2295

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    2300                 2305                 2310

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2315                 2320                 2325

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr
    2330                 2335                 2340

Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala
    2345                 2350                 2355

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    2360                 2365                 2370

Ser Glu  Thr Pro Gly Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu
    2375                 2380                 2385

Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    2390                 2395                 2400
```

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala
2405 2410 2415

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
2420 2425 2430

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala
2435 2440 2445

Pro

<210> 1540
<211> 2450
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1540
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

```
Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
```

```
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765
```

```
Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990
```

```
Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050


Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065


Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080


Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095


Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110


Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125


Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140


Thr Ala  Ser Gly Gln Tyr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    1145                1150                1155


Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1160                1165                1170


Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1175                1180                1185


Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1190                1195                1200
```

```
Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1205                 1210                 1215

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1220                 1225                 1230

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1235                 1240                 1245

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro
    1250                 1255                 1260

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1265                 1270                 1275

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1280                 1285                 1290

Ser Gly  Gly Gln Trp Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser
    1295                 1300                 1305

Gly Ser  Ile Asn Ala Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile
    1310                 1315                 1320

Lys Val  Asp Leu Leu Ala Pro  Met Ile Ile His Gly  Ile Lys Thr
    1325                 1330                 1335

Gln Gly  Ala Arg Gln Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe
    1340                 1345                 1350

Ile Ile  Met Tyr Ser Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg
    1355                 1360                 1365

Gly Asn  Ser Thr Gly Thr Leu  Met Val Phe Phe Gly  Asn Val Asp
    1370                 1375                 1380

Ser Ser  Gly Ile Lys His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala
    1385                 1390                 1395

Arg Tyr  Ile Arg Leu His Pro  Thr His Tyr Ser Ile  Arg Ser Thr
```

1400 1405 1410

Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn Ser Cys Ser Met
1415 1420 1425

Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp Ala Gln Ile Thr
1430 1435 1440

Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr Trp Ser Pro Ser
1445 1450 1455

Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp Arg Pro
1460 1465 1470

Gln Gly Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
1475 1480 1485

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
1490 1495 1500

Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
1505 1510 1515

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
1520 1525 1530

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
1535 1540 1545

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
1550 1555 1560

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
1565 1570 1575

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
1580 1585 1590

Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
1595 1600 1605

```
Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly
    1610                1615                1620

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1625                1630                1635

Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1640                1645                1650

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1655                1660                1665

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    1670                1675                1680

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    1685                1690                1695

Thr Gly  Thr Gly Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1700                1705                1710

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1715                1720                1725

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1730                1735                1740

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1745                1750                1755

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1760                1765                1770

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1775                1780                1785

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1790                1795                1800

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    1805                1810                1815
```

```
Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1820                1825                1830

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1835                1840                1845

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1850                1855                1860

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1865                1870                1875

Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1880                1885                1890

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    1895                1900                1905

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1910                1915                1920

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1925                1930                1935

Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1940                1945                1950

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1955                1960                1965

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1970                1975                1980

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1985                1990                1995

Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2000                2005                2010

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2015                2020                2025
```

```
Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    2030                2035                2040

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    2045                2050                2055

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    2060                2065                2070

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    2075                2080                2085

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    2090                2095                2100

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    2105                2110                2115

Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    2120                2125                2130

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    2135                2140                2145

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    2150                2155                2160

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    2165                2170                2175

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    2180                2185                2190

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    2195                2200                2205

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    2210                2215                2220

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
```

```
    2225                2230                2235

Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    2240                2245                2250

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    2255                2260                2265

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Pro
    2270                2275                2280

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr
    2285                2290                2295

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    2300                2305                2310

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    2315                2320                2325

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Val Asn Asn
    2330                2335                2340

Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln Lys Thr  Met Lys Val
    2345                2350                2355

Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser Leu Leu  Thr Ser Met
    2360                2365                2370

Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser Gln Asp  Gly His Gln
    2375                2380                2385

Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val Lys Val  Phe Gln Gly
    2390                2395                2400

Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn Ser Leu  Asp Pro Pro
    2405                2410                2415

Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro Gln Ser  Trp Val His
    2420                2425                2430
```

Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp
2435 2440 2445

Leu Tyr
2450

<210> 1541
<211> 1715
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1541
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser

```
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365
```

```
Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
```

```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815
```

```
Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Gly Gly Ser Glu Pro Ala Thr
            900                 905                 910

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
        915                 920                 925

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser
    930                 935                 940

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
945                 950                 955                 960

Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
                965                 970                 975

Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser
            980                 985                 990

Glu Pro Ala Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Thr Glu Pro
        995                 1000                1005

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1010                1015                1020

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
```

1025 1030 1035

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ala Glu
1040 1045 1050

Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe
1055 1060 1065

Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu Phe Asp
1070 1075 1080

Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys Asp
1085 1090 1095

Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
1100 1105 1110

Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe
1115 1120 1125

Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe
1130 1135 1140

Thr Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln
1145 1150 1155

Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile
1160 1165 1170

Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln
1175 1180 1185

Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn Glu
1190 1195 1200

Asn Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val Arg
1205 1210 1215

Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro Gly
1220 1225 1230

```
Val Phe  Glu Thr Val Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp
    1235                1240                1245

Arg Val  Glu Cys Leu Ile Gly  Glu His Leu His Ala  Gly Met Ser
    1250                1255                1260

Thr Leu  Phe Leu Val Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly
    1265                1270                1275

Met Ala  Ser Gly His Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly
    1280                1285                1290

Gln Tyr  Gly Gln Trp Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser
    1295                1300                1305

Gly Ser  Ile Asn Ala Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile
    1310                1315                1320

Lys Val  Asp Leu Leu Ala Pro  Met Ile Ile His Gly  Ile Lys Thr
    1325                1330                1335

Gln Gly  Ala Arg Gln Lys Phe  Gly Ser Glu Pro Ala  Thr Ser Gly
    1340                1345                1350

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1355                1360                1365

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1370                1375                1380

Pro Ala  Gly Ser Pro Gly Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile
    1385                1390                1395

Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly
    1400                1405                1410

Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe Gly Asn  Val Asp Ser
    1415                1420                1425

Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg
    1430                1435                1440
```

```
Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu
    1445                1450                1455

Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro
    1460                1465                1470

Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala
    1475                1480                1485

Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys
    1490                1495                1500

Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln
    1505                1510                1515

Val Gly  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1520                1525                1530

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1535                1540                1545

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Gly
    1550                1555                1560

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1565                1570                1575

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1580                1585                1590

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1595                1600                1605

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Gly Thr  Glu Pro Ser
    1610                1615                1620

Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1625                1630                1635

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1640                1645                1650
```

Ser Glu Pro Ala Thr Ser Gly Ser Lys Val Lys Val Phe Gln Gly
    1655   1660   1665

Asn Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro
    1670   1675   1680

Leu Leu Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp Val His
    1685   1690   1695

Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp
    1700   1705   1710

Leu Tyr
    1715

<210> 1542
<211> 3317
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1542
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Gly Pro Gly
            20   25   30

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser
        35   40   45

Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
    50   55   60

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
65   70   75   80

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
                85   90   95

```
Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
            100                 105                 110

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
        115                 120                 125

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
    130                 135                 140

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
145                 150                 155                 160

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Gly Phe
                165                 170                 175

Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr
            180                 185                 190

Lys Lys Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala
        195                 200                 205

Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala
    210                 215                 220

Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His
225                 230                 235                 240

Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu
                245                 250                 255

Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp
            260                 265                 270

Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys
        275                 280                 285

Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr
    290                 295                 300

Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly
305                 310                 315                 320
```

```
Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln
                325                 330                 335

Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys
            340                 345                 350

Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala
        355                 360                 365

Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val
    370                 375                 380

Asn Arg Ser Leu Pro Gly Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
385                 390                 395                 400

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                405                 410                 415

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            420                 425                 430

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        435                 440                 445

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    450                 455                 460

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
465                 470                 475                 480

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                485                 490                 495

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            500                 505                 510

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        515                 520                 525

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
```

```
    530                 535                 540

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
545                 550                 555                 560

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
                565                 570                 575

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            580                 585                 590

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        595                 600                 605

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    610                 615                 620

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
625                 630                 635                 640

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                645                 650                 655

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            660                 665                 670

Pro Ser Gly Ala Thr Gly Ser Gly Leu Ile Gly Cys His Arg Lys Ser
        675                 680                 685

Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser
    690                 695                 700

Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala
705                 710                 715                 720

Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu
                725                 730                 735

Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln
            740                 745                 750
```

```
His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu
        755                 760                 765

Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp
    770                 775                 780

Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn
785                 790                 795                 800

Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys
                805                 810                 815

Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala
            820                 825                 830

Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu
        835                 840                 845

Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe
    850                 855                 860

Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His
865                 870                 875                 880

Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr
                885                 890                 895

Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr
            900                 905                 910

Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro
        915                 920                 925

Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile
    930                 935                 940

Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser
945                 950                 955                 960

Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu
                965                 970                 975
```

```
Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys
            980                 985                 990

Glu Ser Val Asp Gln Arg Gly Asn  Gln Ile Met Ser Asp  Lys Arg Asn
        995                 1000                1005

Val Ile  Leu Phe Ser Val Phe  Asp Glu Asn Arg Ser  Trp Tyr Leu
    1010                1015                1020

Thr Glu  Asn Ile Gln Arg Phe  Leu Pro Asn Pro Ala  Gly Val Gln
    1025                1030                1035

Leu Glu  Asp Pro Glu Phe Gln  Ala Ser Asn Ile Met  His Ser Ile
    1040                1045                1050

Asn Gly  Tyr Val Phe Asp Ser  Leu Gln Leu Ser Val  Cys Leu His
    1055                1060                1065

Glu Val  Ala Tyr Trp Tyr Ile  Leu Ser Ile Gly Ala  Gln Thr Asp
    1070                1075                1080

Phe Leu  Ser Val Phe Phe Ser  Gly Tyr Thr Phe Lys  His Lys Met
    1085                1090                1095

Val Tyr  Glu Asp Thr Leu Thr  Leu Phe Pro Phe Ser  Gly Glu Thr
    1100                1105                1110

Val Phe  Met Ser Met Glu Asn  Pro Gly Leu Trp Ile  Leu Gly Cys
    1115                1120                1125

His Asn  Ser Asp Phe Arg Asn  Arg Gly Met Thr Ala  Leu Leu Lys
    1130                1135                1140

Val Ser  Ser Cys Asp Lys Asn  Thr Gly Asp Tyr Tyr  Glu Asp Ser
    1145                1150                1155

Tyr Glu  Asp Ile Ser Ala Tyr  Leu Leu Ser Lys Asn  Asn Ala Ile
    1160                1165                1170

Glu Pro  Arg Ser Phe Ser Gln  Asn Pro Pro Val Leu  Lys Arg His
    1175                1180                1185
```

```
Gln Arg  Glu Ile Thr Arg Thr  Thr Leu Gln Ser Asp  Gln Glu Glu
    1190                1195                1200

Ile Asp  Tyr Asp Asp Thr Ile  Ser Val Glu Met Lys  Lys Glu Asp
    1205                1210                1215

Phe Asp  Ile Tyr Asp Glu Asp  Glu Asn Gln Ser Pro  Arg Ser Phe
    1220                1225                1230

Gln Lys  Lys Thr Arg His Tyr  Phe Ile Ala Ala Val  Glu Arg Leu
    1235                1240                1245

Trp Asp  Tyr Gly Met Ser Ser  Ser Pro His Val Leu  Arg Asn Arg
    1250                1255                1260

Ala Gln  Ser Gly Ser Val Pro  Gln Phe Lys Lys Val  Val Phe Gln
    1265                1270                1275

Glu Phe  Thr Asp Gly Ser Phe  Thr Gln Pro Leu Tyr  Arg Gly Glu
    1280                1285                1290

Leu Asn  Glu His Leu Gly Leu  Leu Gly Pro Tyr Ile  Arg Ala Glu
    1295                1300                1305

Val Glu  Asp Asn Ile Met Val  Thr Phe Arg Asn Gln  Ala Ser Arg
    1310                1315                1320

Pro Tyr  Ser Phe Tyr Ser Ser  Leu Ile Ser Tyr Glu  Glu Asp Gln
    1325                1330                1335

Arg Gln  Gly Ala Glu Pro Arg  Lys Asn Phe Val Lys  Pro Asn Glu
    1340                1345                1350

Thr Lys  Thr Tyr Phe Trp Lys  Val Gln His His Met  Ala Pro Thr
    1355                1360                1365

Lys Asp  Glu Phe Asp Cys Lys  Ala Trp Ala Tyr Phe  Ser Asp Val
    1370                1375                1380

Asp Leu  Glu Lys Asp Val His  Ser Gly Leu Ile Gly  Pro Leu Leu
```

```
    1385                1390                1395

Val Cys  His Thr Asn Thr Leu  Asn Pro Ala His Gly  Arg Gln Val
    1400                1405                1410

Thr Val  Gln Glu Phe Ala Leu  Phe Phe Thr Ile Phe  Asp Glu Thr
    1415                1420                1425

Lys Ser  Trp Tyr Phe Thr Glu  Asn Met Glu Arg Asn  Cys Arg Ala
    1430                1435                1440

Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr Phe Lys  Glu Asn Tyr
    1445                1450                1455

Arg Phe  His Ala Gly Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro
    1460                1465                1470

Gly Leu  Val Met Ala Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu
    1475                1480                1485

Ser Met  Gly Ser Asn Glu Asn  Ile His Ser Ile His  Phe Ser Gly
    1490                1495                1500

His Val  Phe Thr Val Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu
    1505                1510                1515

Tyr Asn  Leu Tyr Pro Gly Val  Phe Glu Thr Val Glu  Met Leu Pro
    1520                1525                1530

Ser Lys  Ala Gly Ile Trp Arg  Val Glu Cys Leu Ile  Gly Glu His
    1535                1540                1545

Leu His  Ala Gly Met Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys
    1550                1555                1560

Cys Gln  Thr Pro Leu Gly Met  Ala Ser Gly His Ile  Arg Asp Phe
    1565                1570                1575

Gln Ile  Thr Ala Ser Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu
    1580                1585                1590
```

```
Ala Arg  Leu His Tyr Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys
    1595                1600                1605

Glu Pro  Phe Ser Trp Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile
    1610                1615                1620

Ile His  Gly Ile Lys Thr Gln  Gly Ala Arg Gly Ser  Pro Ala Gly
    1625                1630                1635

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    1640                1645                1650

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1655                1660                1665

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1670                1675                1680

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1685                1690                1695

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1700                1705                1710

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1715                1720                1725

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1730                1735                1740

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1745                1750                1755

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1760                1765                1770

Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1775                1780                1785

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr
    1790                1795                1800
```

```
Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1805                1810                1815

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1820                1825                1830

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1835                1840                1845

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1850                1855                1860

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Thr Glu
    1865                1870                1875

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    1880                1885                1890

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1910                1915                1920

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1925                1930                1935

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1940                1945                1950

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1955                1960                1965

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr
    1970                1975                1980

Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu
    1985                1990                1995

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2000                2005                2010
```

```
Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2015                 2020                 2025

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    2030                 2035                 2040

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    2045                 2050                 2055

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    2060                 2065                 2070

Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    2075                 2080                 2085

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    2090                 2095                 2100

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    2105                 2110                 2115

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2120                 2125                 2130

Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    2135                 2140                 2145

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    2150                 2155                 2160

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly
    2165                 2170                 2175

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro
    2180                 2185                 2190

Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    2195                 2200                 2205

Pro Gly  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
```

```
    2210                2215                2220

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    2225                2230                2235

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    2240                2245                2250

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    2255                2260                2265

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    2270                2275                2280

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    2285                2290                2295

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    2300                2305                2310

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    2315                2320                2325

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    2330                2335                2340

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    2345                2350                2355

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    2360                2365                2370

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    2375                2380                2385

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    2390                2395                2400

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    2405                2410                2415
```

```
Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    2420                2425                2430

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    2435                2440                2445

Gln Asp  Leu Tyr Gly Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2450                2455                2460

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2465                2470                2475

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
    2480                2485                2490

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    2495                2500                2505

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2510                2515                2520

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2525                2530                2535

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro
    2540                2545                2550

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro
    2555                2560                2565

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2570                2575                2580

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2585                2590                2595

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
    2600                2605                2610

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    2615                2620                2625
```

```
Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2630                 2635                 2640

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2645                 2650                 2655

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    2660                 2665                 2670

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    2675                 2680                 2685

Gly Ser  Glu Thr Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2690                 2695                 2700

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2705                 2710                 2715

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu
    2720                 2725                 2730

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Pro Ala  Gly Ser Pro
    2735                 2740                 2745

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2750                 2755                 2760

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2765                 2770                 2775

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    2780                 2785                 2790

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    2795                 2800                 2805

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2810                 2815                 2820

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2825                 2830                 2835
```

```
Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    2840                2845                2850

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro
    2855                2860                2865

Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2870                2875                2880

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2885                2890                2895

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu
    2900                2905                2910

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    2915                2920                2925

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2930                2935                2940

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2945                2950                2955

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala
    2960                2965                2970

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    2975                2980                2985

Thr Ser  Thr Glu Glu Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2990                2995                3000

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    3005                3010                3015

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    3020                3025                3030

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
```

```
    3035                3040                3045

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    3050                3055                3060

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    3065                3070                3075

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    3080                3085                3090

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro
    3095                3100                3105

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    3110                3115                3120

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    3125                3130                3135

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala
    3140                3145                3150

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    3155                3160                3165

Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    3170                3175                3180

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    3185                3190                3195

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu
    3200                3205                3210

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    3215                3220                3225

Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    3230                3235                3240
```

```
Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    3245                3250                3255


Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    3260                3265                3270


Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Glu Pro  Ala Thr Ser
    3275                3280                3285


Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    3290                3295                3300


Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro
    3305                3310                3315


<210> 1543
<211> 3347
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1543
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                   10                  15


Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30


Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45


Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60


Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80


Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95


Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
```

```
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540
```

```
Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560


Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575


Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590


Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605


Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620


Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655


Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro Ser Thr Arg
            740                 745                 750


Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp Ile Glu Lys
        755                 760                 765
```

```
Thr Asp Pro Trp Phe Ala His Arg Thr Pro Met Pro Lys Ile Gln Asn
    770                 775                 780

Val Ser Ser Ser Asp Leu Leu Met Leu Leu Arg Gln Ser Pro Thr Pro
785                 790                 795                 800

His Gly Leu Ser Leu Ser Asp Leu Gln Glu Ala Lys Tyr Glu Thr Phe
                805                 810                 815

Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn Ser Leu Ser
            820                 825                 830

Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly Asp Met Val
        835                 840                 845

Phe Thr Pro Glu Ser Gly Leu Gln Leu Arg Leu Asn Glu Lys Leu Gly
    850                 855                 860

Thr Thr Ala Ala Thr Glu Leu Lys Lys Leu Asp Phe Lys Val Ser Ser
865                 870                 875                 880

Thr Ser Asn Asn Leu Ile Ser Thr Ile Pro Ser Asp Asn Leu Ala Ala
                885                 890                 895

Gly Thr Asp Asn Thr Ser Ser Leu Gly Pro Pro Ser Met Pro Val His
            900                 905                 910

Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly Lys Lys Ser Ser Pro
        915                 920                 925

Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu Asn Asn Asp
    930                 935                 940

Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu Ser Ser Trp
945                 950                 955                 960

Gly Lys Asn Val Ser Ser Thr Glu Ser Gly Arg Leu Phe Lys Gly Lys
                965                 970                 975

Arg Ala His Gly Pro Ala Leu Leu Thr Lys Asp Asn Ala Leu Phe Lys
```

```
           980                 985                 990

Val Ser Ile Ser Leu Leu Lys Thr  Asn Lys Thr Ser Asn  Asn Ser Ala
        995                1000                1005

Thr Asn  Arg Lys Thr His Ile  Asp Gly Pro Ser Leu  Leu Ile Glu
    1010                1015                1020

Asn Ser  Pro Ser Val Trp Gln  Asn Ile Leu Glu Ser  Asp Thr Glu
    1025                1030                1035

Phe Lys  Lys Val Thr Pro Leu  Ile His Asp Arg Met  Leu Met Asp
    1040                1045                1050

Lys Asn  Ala Thr Ala Leu Arg  Leu Asn His Met Ser  Asn Lys Thr
    1055                1060                1065

Thr Ser  Ser Lys Asn Met Glu  Met Val Gln Gln Lys  Lys Glu Gly
    1070                1075                1080

Pro Ile  Pro Pro Asp Ala Gln  Asn Pro Asp Met Ser  Phe Phe Lys
    1085                1090                1095

Met Leu  Phe Leu Pro Glu Ser  Ala Arg Trp Ile Gln  Arg Thr His
    1100                1105                1110

Gly Lys  Asn Ser Leu Asn Ser  Gly Gln Gly Pro Ser  Pro Lys Gln
    1115                1120                1125

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

Leu Ser  Glu Lys Asn Lys Val  Val Val Gly Lys Gly  Glu Phe Thr
    1145                1150                1155

Lys Asp  Val Gly Leu Lys Glu  Met Val Phe Pro Ser  Ser Arg Asn
    1160                1165                1170

Leu Phe  Leu Thr Asn Leu Asp  Asn Leu His Glu Asn  Asn Thr His
    1175                1180                1185
```

```
Asn Gln  Glu Lys Lys Ile Gln  Glu Glu Ile Glu Lys  Lys Glu Thr
    1190                 1195                 1200

Leu Ile  Gln Glu Asn Val Val  Leu Pro Gln Ile His  Thr Val Thr
    1205                 1210                 1215

Gly Thr  Lys Asn Phe Met Lys  Asn Leu Phe Leu Leu  Ser Thr Arg
    1220                 1225                 1230

Gln Asn  Val Glu Gly Ser Tyr  Asp Gly Ala Tyr Ala  Pro Val Leu
    1235                 1240                 1245

Gln Asp  Phe Arg Ser Leu Asn  Asp Ser Thr Asn Arg  Thr Lys Lys
    1250                 1255                 1260

His Thr  Ala His Phe Ser Lys  Lys Gly Glu Glu Glu  Asn Leu Glu
    1265                 1270                 1275

Gly Leu  Gly Asn Gln Thr Lys  Gln Ile Val Glu Lys  Tyr Ala Cys
    1280                 1285                 1290

Thr Thr  Arg Ile Ser Pro Asn  Thr Ser Gln Gln Asn  Phe Val Thr
    1295                 1300                 1305

Gln Arg  Ser Lys Arg Ala Leu  Lys Gln Phe Arg Leu  Pro Leu Glu
    1310                 1315                 1320

Glu Thr  Glu Leu Glu Lys Arg  Ile Ile Val Asp Asp  Thr Ser Thr
    1325                 1330                 1335

Gln Trp  Ser Lys Asn Met Lys  His Leu Thr Pro Ser  Thr Leu Thr
    1340                 1345                 1350

Gln Ile  Asp Tyr Asn Glu Lys  Glu Lys Gly Ala Ile  Thr Gln Ser
    1355                 1360                 1365

Pro Leu  Ser Asp Cys Leu Thr  Arg Ser His Ser Ile  Pro Gln Ala
    1370                 1375                 1380

Asn Arg  Ser Pro Leu Pro Ile  Ala Lys Val Ser Ser  Phe Pro Ser
    1385                 1390                 1395
```

```
Ile Arg  Pro Ile Tyr Leu Thr  Arg Val Leu Phe Gln  Asp Asn Ser
    1400                1405                1410

Ser His  Leu Pro Ala Ala Ser  Tyr Arg Lys Lys Asp  Ser Gly Val
    1415                1420                1425

Gln Glu  Ser Ser His Phe Leu  Gln Gly Ala Lys Lys  Asn Asn Leu
    1430                1435                1440

Ser Leu  Ala Ile Leu Thr Leu  Glu Met Thr Gly Asp  Gln Arg Glu
    1445                1450                1455

Val Gly  Ser Leu Gly Thr Ser  Ala Thr Asn Ser Val  Thr Tyr Lys
    1460                1465                1470

Lys Val  Glu Asn Thr Val Leu  Pro Lys Pro Asp Leu  Pro Lys Thr
    1475                1480                1485

Ser Gly  Lys Val Glu Leu Leu  Pro Lys Val His Ile  Tyr Gln Lys
    1490                1495                1500

Asp Leu  Phe Pro Thr Glu Thr  Ser Asn Gly Ser Pro  Gly His Leu
    1505                1510                1515

Asp Leu  Val Glu Gly Ser Leu  Leu Gln Gly Thr Glu  Gly Ala Ile
    1520                1525                1530

Lys Trp  Asn Glu Ala Asn Arg  Pro Gly Lys Val Pro  Phe Leu Arg
    1535                1540                1545

Val Ala  Thr Glu Ser Ser Ala  Lys Thr Pro Ser Lys  Leu Leu Asp
    1550                1555                1560

Pro Leu  Ala Trp Asp Asn His  Tyr Gly Thr Gln Ile  Pro Lys Glu
    1565                1570                1575

Glu Trp  Lys Ser Gln Glu Lys  Ser Pro Glu Lys Thr  Ala Phe Lys
    1580                1585                1590

Lys Lys  Asp Thr Ile Leu Ser  Leu Asn Ala Cys Glu  Ser Asn His
    1595                1600                1605
```

```
Ala Ile  Ala Ala Ile Asn Glu  Gly Gln Asn Lys Pro  Glu Ile Glu
    1610                1615                1620

Val Thr  Trp Ala Lys Gln Gly  Arg Thr Glu Arg Leu  Cys Ser Gln
    1625                1630                1635

Asn Pro  Pro Val Leu Lys Arg  His Gln Arg Glu Ile  Thr Gly Pro
    1640                1645                1650

Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser
    1655                1660                1665

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1670                1675                1680

Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
    1685                1690                1695

Thr Gly  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1700                1705                1710

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ala Ser
    1715                1720                1725

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1730                1735                1740

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1745                1750                1755

Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1760                1765                1770

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1775                1780                1785

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1790                1795                1800

Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
```

```
    1805                1810                1815

Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1820                1825                1830

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1835                1840                1845

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1850                1855                1860

Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1865                1870                1875

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1880                1885                1890

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro
    1895                1900                1905

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser
    1910                1915                1920

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1925                1930                1935

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1940                1945                1950

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser
    1955                1960                1965

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1970                1975                1980

Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1985                1990                1995

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    2000                2005                2010
```

```
Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    2015                 2020                 2025

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    2030                 2035                 2040

Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    2045                 2050                 2055

Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    2060                 2065                 2070

Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser
    2075                 2080                 2085

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly
    2090                 2095                 2100

Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    2105                 2110                 2115

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    2120                 2125                 2130

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser
    2135                 2140                 2145

Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr
    2150                 2155                 2160

Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    2165                 2170                 2175

Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    2180                 2185                 2190

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser
    2195                 2200                 2205

Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr
    2210                 2215                 2220
```

```
Ser Ser  Thr Gly Ser Ser Gly  Arg Thr Thr Leu Gln  Ser Asp Gln
    2225                2230                2235

Glu Glu  Ile Asp Tyr Asp Asp  Thr Ile Ser Val Glu  Met Lys Lys
    2240                2245                2250

Glu Asp  Phe Asp Ile Tyr Asp  Glu Asp Glu Asn Gln  Ser Pro Arg
    2255                2260                2265

Ser Phe  Gln Lys Lys Thr Arg  His Tyr Phe Ile Ala  Ala Val Glu
    2270                2275                2280

Arg Leu  Trp Asp Tyr Gly Met  Ser Ser Ser Pro His  Val Leu Arg
    2285                2290                2295

Asn Arg  Ala Gln Ser Gly Ser  Val Pro Gln Phe Lys  Lys Val Val
    2300                2305                2310

Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
    2315                2320                2325

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    2330                2335                2340

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    2345                2350                2355

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    2360                2365                2370

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Gly
    2375                2380                2385

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    2390                2395                2400

Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    2405                2410                2415

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    2420                2425                2430
```

```
Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    2435                2440                2445

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    2450                2455                2460

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2465                2470                2475

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    2480                2485                2490

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro
    2495                2500                2505

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser
    2510                2515                2520

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Pro Asn  Glu Thr Lys
    2525                2530                2535

Thr Tyr  Phe Trp Lys Val Gln  His His Met Ala Pro  Thr Lys Asp
    2540                2545                2550

Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu
    2555                2560                2565

Glu Lys  Asp Val His Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys
    2570                2575                2580

His Thr  Asn Thr Leu Asn Pro  Ala His Gly Arg Gln  Val Thr Val
    2585                2590                2595

Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser
    2600                2605                2610

Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys
    2615                2620                2625

Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe
```

```
    2630                2635                2640

His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val
    2645                2650                2655

Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly
    2660                2665                2670

Ser Asn  Glu Asn Ile His Ser  Ile His Phe Ser Gly  His Val Phe
    2675                2680                2685

Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu
    2690                2695                2700

Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala
    2705                2710                2715

Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly Glu His  Leu His Ala
    2720                2725                2730

Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr
    2735                2740                2745

Pro Leu  Gly Met Ala Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr
    2750                2755                2760

Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu
    2765                2770                2775

His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe
    2780                2785                2790

Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro Met Ile  Ile His Gly
    2795                2800                2805

Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe Gly Pro  Gly Ala Ser
    2810                2815                2820

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    2825                2830                2835
```

```
Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    2840                 2845                 2850

Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    2855                 2860                 2865

Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser
    2870                 2875                 2880

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly
    2885                 2890                 2895

Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    2900                 2905                 2910

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    2915                 2920                 2925

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser
    2930                 2935                 2940

Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr
    2945                 2950                 2955

Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    2960                 2965                 2970

Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    2975                 2980                 2985

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser
    2990                 2995                 3000

Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr
    3005                 3010                 3015

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    3020                 3025                 3030

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    3035                 3040                 3045
```

```
Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser
    3050                 3055                 3060

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    3065                 3070                 3075

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    3080                 3085                 3090

Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Gly
    3095                 3100                 3105

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    3110                 3115                 3120

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    3125                 3130                 3135

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    3140                 3145                 3150

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    3155                 3160                 3165

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    3170                 3175                 3180

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    3185                 3190                 3195

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    3200                 3205                 3210

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    3215                 3220                 3225

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    3230                 3235                 3240

Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    3245                 3250                 3255
```

```
Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    3260                3265                3270


Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    3275                3280                3285


Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
    3290                3295                3300


Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    3305                3310                3315


Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
    3320                3325                3330


Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr
    3335                3340                3345


<210> 1544
<211> 1614
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1544
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                   10                  15


Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Gly Gly Ala Pro
            20                  25                  30


Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
        35                  40                  45


Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
    50                  55                  60


Ser Pro Gly Pro Ser Gly Pro Gly Arg Phe Pro Pro Arg Val Pro Lys
65                  70                  75                  80
```

```
Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val
                85                  90                  95

Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp
            100                 105                 110

Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val
        115                 120                 125

Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala
    130                 135                 140

Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp
145                 150                 155                 160

Gln Thr Ser Gln Arg Glu Lys Glu Gly Gly Pro Gly Thr Pro Gly Ser
                165                 170                 175

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            180                 185                 190

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
        195                 200                 205

Ala Ser Pro Gly Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr
    210                 215                 220

Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu
225                 230                 235                 240

Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu
                245                 250                 255

Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu
            260                 265                 270

Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala
        275                 280                 285

Val Phe Asp Glu Gly Gly Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
    290                 295                 300
```

```
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
305                 310                 315                 320

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                325                 330                 335

Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg
            340                 345                 350

Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly
        355                 360                 365

Tyr Val Asn Ser Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser
    370                 375                 380

Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser
385                 390                 395                 400

Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala
                405                 410                 415

Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu
            420                 425                 430

Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln
        435                 440                 445

His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu
    450                 455                 460

Pro Gly Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
465                 470                 475                 480

Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
                485                 490                 495

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Gly Gln Leu Arg
            500                 505                 510

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
```

```
        515                 520                 525

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
    530                 535                 540

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
545                 550                 555                 560

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
                565                 570                 575

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
            580                 585                 590

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
        595                 600                 605

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
    610                 615                 620

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
625                 630                 635                 640

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
                645                 650                 655

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
            660                 665                 670

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
        675                 680                 685

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
    690                 695                 700

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
705                 710                 715                 720

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
                725                 730                 735
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
            740                 745                 750

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
        755                 760                 765

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
    770                 775                 780

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
785                 790                 795                 800

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
                805                 810                 815

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
            820                 825                 830

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
        835                 840                 845

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
    850                 855                 860

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
865                 870                 875                 880

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
                885                 890                 895

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
            900                 905                 910

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
        915                 920                 925

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
    930                 935                 940

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
945                 950                 955                 960
```

```
Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
               965                 970                 975

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
            980                 985                 990

Met Ser Ser Ser Pro His Val Leu  Arg Asn Arg Ala Gln  Ser Gly Ser
        995                 1000                1005

Val Pro  Gln Phe Lys Lys Val  Val Phe Gln Glu Phe  Thr Asp Gly
    1010                1015                1020

Ser Phe  Thr Gln Pro Leu Tyr  Arg Gly Glu Leu Asn  Glu His Leu
    1025                1030                1035

Gly Leu  Leu Gly Pro Tyr Ile  Arg Ala Glu Val Glu  Asp Asn Ile
    1040                1045                1050

Met Val  Thr Phe Arg Asn Gln  Ala Ser Arg Pro Tyr  Ser Phe Tyr
    1055                1060                1065

Ser Ser  Leu Ile Ser Tyr Glu  Glu Asp Gln Arg Gln  Gly Ala Glu
    1070                1075                1080

Pro Arg  Lys Asn Phe Val Lys  Pro Asn Glu Thr Lys  Thr Tyr Phe
    1085                1090                1095

Trp Lys  Val Gln His His Met  Ala Pro Thr Lys Asp  Glu Phe Asp
    1100                1105                1110

Cys Lys  Ala Trp Ala Tyr Phe  Ser Asp Val Asp Leu  Glu Lys Asp
    1115                1120                1125

Val His  Ser Gly Leu Ile Gly  Pro Leu Leu Val Cys  His Thr Asn
    1130                1135                1140

Thr Leu  Asn Pro Ala His Gly  Arg Gln Val Thr Val  Gln Glu Phe
    1145                1150                1155

Ala Leu  Phe Phe Thr Ile Phe  Asp Glu Thr Lys Ser  Trp Tyr Phe
    1160                1165                1170
```

```
Thr Glu  Asn Met Glu Arg Asn  Cys Arg Ala Pro Cys  Asn Ile Gln
    1175                1180                1185

Met Glu  Asp Pro Thr Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile
    1190                1195                1200

Asn Gly  Tyr Ile Met Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln
    1205                1210                1215

Asp Gln  Arg Ile Arg Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu
    1220                1225                1230

Asn Ile  His Ser Ile His Phe  Ser Gly His Val Phe  Thr Val Arg
    1235                1240                1245

Lys Lys  Glu Glu Tyr Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly
    1250                1255                1260

Val Phe  Glu Thr Val Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp
    1265                1270                1275

Arg Val  Glu Cys Leu Ile Gly  Glu His Leu His Ala  Gly Met Ser
    1280                1285                1290

Thr Leu  Phe Leu Val Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly
    1295                1300                1305

Met Ala  Ser Gly His Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly
    1310                1315                1320

Gln Tyr  Gly Gln Trp Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser
    1325                1330                1335

Gly Ser  Ile Asn Ala Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile
    1340                1345                1350

Lys Val  Asp Leu Leu Ala Pro  Met Ile Ile His Gly  Ile Lys Thr
    1355                1360                1365

Gln Gly  Ala Arg Gln Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe
```

```
    1370                1375                1380

Ile Ile  Met Tyr Ser Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg
    1385                1390                1395

Gly Asn  Ser Thr Gly Thr Leu  Met Val Phe Phe Gly  Asn Val Asp
    1400                1405                1410

Ser Ser  Gly Ile Lys His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala
    1415                1420                1425

Arg Tyr  Ile Arg Leu His Pro  Thr His Tyr Ser Ile  Arg Ser Thr
    1430                1435                1440

Leu Arg  Met Glu Leu Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met
    1445                1450                1455

Pro Leu  Gly Met Glu Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr
    1460                1465                1470

Ala Ser  Ser Tyr Phe Thr Asn  Met Phe Ala Thr Trp  Thr Pro Ser
    1475                1480                1485

Lys Ala  Arg Leu His Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro
    1490                1495                1500

Gln Val  Asn Asn Pro Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys
    1505                1510                1515

Thr Met  Lys Val Thr Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu
    1520                1525                1530

Leu Thr  Ser Met Tyr Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln
    1535                1540                1545

Asp Gly  His Gln Trp Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys
    1550                1555                1560

Val Phe  Gln Gly Asn Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser
    1565                1570                1575
```

Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro Gln
    1580   1585   1590

Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys
    1595   1600   1605

Glu Ala Gln Asp Leu Tyr
    1610

<210> 1545
<211> 2914
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1545
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn

```
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Gly Gly Ser Glu Pro Ala Thr
            340                 345                 350
```

```
Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
        355                 360                 365

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser
    370                 375                 380

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
385                 390                 395                 400

Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
                405                 410                 415

Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser
            420                 425                 430

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro
        435                 440                 445

Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
    450                 455                 460

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr
465                 470                 475                 480

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Tyr Asp Asp Asp Leu
                485                 490                 495

Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro
            500                 505                 510

Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp
        515                 520                 525

Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu
    530                 535                 540

Val Leu Ala Pro Asp Asp Gly Gly Thr Ser Thr Pro Glu Ser Gly Ser
545                 550                 555                 560

Ala Ser Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
                565                 570                 575
```

```
Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser
            580                 585                 590

Thr Ala Glu Ser Pro Gly Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly
        595                 600                 605

Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly
    610                 615                 620

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Thr Pro
625                 630                 635                 640

Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser
                645                 650                 655

Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly
            660                 665                 670

Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser
        675                 680                 685

Gly Glu Ser Ser Thr Ala Pro Gly Arg Ser Tyr Lys Ser Gln Tyr Leu
    690                 695                 700

Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe
705                 710                 715                 720

Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His
                725                 730                 735

Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr
            740                 745                 750

Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr
        755                 760                 765

Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro
    770                 775                 780

Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile
785                 790                 795                 800
```

```
Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser
                805                 810                 815

Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu
            820                 825                 830

Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys
        835                 840                 845

Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn
    850                 855                 860

Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr
865                 870                 875                 880

Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu
                885                 890                 895

Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr
            900                 905                 910

Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr
        915                 920                 925

Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe
    930                 935                 940

Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu
945                 950                 955                 960

Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn
                965                 970                 975

Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg
            980                 985                 990

Gly Met Thr Ala Leu Leu Lys Val  Ser Ser Cys Asp Lys  Asn Thr Gly
        995                 1000                1005

Asp Tyr  Tyr Glu Asp Ser Tyr  Glu Asp Ile Ser Ala  Tyr Leu Leu
```

```
    1010                1015                1020

Ser Lys  Asn Asn Ala Ile Glu  Pro Arg Ser Phe Ser  Gln Asn Ser
    1025                1030                1035

Arg His  Pro Ser Thr Arg Gln  Lys Gln Phe Asn Ala  Thr Thr Ile
    1040                1045                1050

Pro Glu  Asn Asp Ile Glu Lys  Thr Asp Pro Trp Phe  Ala His Arg
    1055                1060                1065

Thr Pro  Met Pro Lys Ile Gln  Asn Val Ser Ser Ser  Asp Leu Leu
    1070                1075                1080

Met Leu  Leu Arg Gln Ser Pro  Thr Pro His Gly Leu  Ser Leu Ser
    1085                1090                1095

Asp Leu  Gln Glu Ala Lys Tyr  Glu Thr Phe Ser Asp  Asp Pro Ser
    1100                1105                1110

Pro Gly  Ala Ile Asp Ser Asn  Asn Ser Leu Ser Glu  Met Thr His
    1115                1120                1125

Phe Arg  Pro Gln Leu His His  Ser Gly Asp Met Val  Phe Thr Pro
    1130                1135                1140

Glu Ser  Gly Leu Gln Leu Arg  Leu Asn Glu Lys Leu  Gly Thr Thr
    1145                1150                1155

Ala Ala  Thr Glu Leu Lys Lys  Leu Asp Phe Lys Val  Ser Ser Thr
    1160                1165                1170

Ser Asn  Asn Leu Ile Ser Thr  Ile Pro Ser Asp Asn  Leu Ala Ala
    1175                1180                1185

Gly Thr  Asp Asn Thr Ser Ser  Leu Gly Pro Pro Ser  Met Pro Val
    1190                1195                1200

His Tyr  Asp Ser Gln Leu Asp  Thr Thr Leu Phe Gly  Lys Lys Ser
    1205                1210                1215
```

```
Ser Pro  Leu Thr Glu Ser Gly  Gly Pro Leu Ser Leu  Ser Glu Glu
    1220                1225                1230

Asn Asn  Asp Ser Lys Leu Leu  Glu Ser Gly Leu Met  Asn Ser Gln
    1235                1240                1245

Glu Ser  Ser Trp Gly Lys Asn  Val Ser Ser Thr Glu  Ser Gly Arg
    1250                1255                1260

Leu Phe  Lys Gly Lys Arg Ala  His Gly Pro Ala Leu  Leu Thr Lys
    1265                1270                1275

Asp Asn  Ala Leu Phe Lys Val  Ser Ile Ser Leu Leu  Lys Thr Asn
    1280                1285                1290

Lys Thr  Ser Asn Asn Ser Ala  Thr Asn Arg Lys Thr  His Ile Asp
    1295                1300                1305

Gly Pro  Ser Leu Leu Ile Glu  Asn Ser Pro Ser Val  Trp Gln Asn
    1310                1315                1320

Ile Leu  Glu Ser Asp Thr Glu  Phe Lys Lys Val Thr  Pro Leu Ile
    1325                1330                1335

His Asp  Arg Met Leu Met Asp  Lys Asn Ala Thr Ala  Leu Arg Leu
    1340                1345                1350

Asn His  Met Ser Asn Lys Thr  Thr Ser Ser Lys Asn  Met Glu Met
    1355                1360                1365

Val Gln  Gln Lys Lys Glu Gly  Pro Ile Pro Pro Asp  Ala Gln Asn
    1370                1375                1380

Pro Asp  Met Ser Phe Phe Lys  Met Leu Phe Leu Pro  Glu Ser Ala
    1385                1390                1395

Arg Trp  Ile Gln Arg Thr His  Gly Lys Asn Ser Leu  Asn Ser Gly
    1400                1405                1410

Gln Gly  Pro Ser Pro Lys Gln  Leu Val Ser Leu Gly  Pro Glu Lys
    1415                1420                1425
```

```
Ser Val  Glu Gly Gln Asn Phe  Leu Ser Glu Lys Asn  Lys Val Val
    1430                1435                1440

Val Gly  Lys Gly Glu Phe Thr  Lys Asp Val Gly Leu  Lys Glu Met
    1445                1450                1455

Val Phe  Pro Ser Ser Arg Asn  Leu Phe Leu Thr Asn  Leu Asp Asn
    1460                1465                1470

Leu His  Glu Asn Asn Thr His  Asn Gln Glu Lys Lys  Ile Gln Glu
    1475                1480                1485

Glu Ile  Glu Lys Lys Glu Thr  Leu Ile Gln Glu Asn  Val Val Leu
    1490                1495                1500

Pro Gln  Ile His Thr Val Thr  Gly Thr Lys Asn Phe  Met Lys Asn
    1505                1510                1515

Leu Phe  Leu Leu Ser Thr Arg  Gln Asn Val Glu Gly  Ser Tyr Asp
    1520                1525                1530

Gly Ala  Tyr Ala Pro Val Leu  Gln Asp Phe Arg Ser  Leu Asn Asp
    1535                1540                1545

Ser Thr  Asn Arg Thr Lys Lys  His Thr Ala His Phe  Ser Lys Lys
    1550                1555                1560

Gly Glu  Glu Glu Asn Leu Glu  Gly Leu Gly Asn Gln  Thr Lys Gln
    1565                1570                1575

Ile Val  Glu Lys Tyr Ala Cys  Thr Thr Arg Ile Ser  Pro Asn Thr
    1580                1585                1590

Ser Gln  Gln Asn Phe Val Thr  Gln Arg Ser Lys Arg  Ala Leu Lys
    1595                1600                1605

Gln Phe  Arg Leu Pro Leu Glu  Glu Thr Glu Leu Glu  Lys Arg Ile
    1610                1615                1620

Ile Val  Asp Asp Thr Ser Thr  Gln Trp Ser Lys Asn  Met Lys His
    1625                1630                1635
```

```
Leu Thr  Pro Ser Thr Leu Thr  Gln Ile Asp Tyr Asn  Glu Lys Glu
    1640                1645                1650

Lys Gly  Ala Ile Thr Gln Ser  Pro Leu Ser Asp Cys  Leu Thr Arg
    1655                1660                1665

Ser His  Ser Ile Pro Gln Ala  Asn Arg Ser Pro Leu  Pro Ile Ala
    1670                1675                1680

Lys Val  Ser Ser Phe Pro Ser  Ile Arg Pro Ile Tyr  Leu Thr Arg
    1685                1690                1695

Val Leu  Phe Gln Asp Asn Ser  Ser His Leu Pro Ala  Ala Ser Tyr
    1700                1705                1710

Arg Lys  Lys Asp Ser Gly Val  Gln Glu Ser Ser His  Phe Leu Gln
    1715                1720                1725

Gly Ala  Lys Lys Asn Asn Leu  Ser Leu Ala Ile Leu  Thr Leu Glu
    1730                1735                1740

Met Thr  Gly Asp Gln Arg Glu  Val Gly Ser Leu Gly  Thr Ser Ala
    1745                1750                1755

Thr Asn  Ser Val Thr Tyr Lys  Lys Val Glu Asn Thr  Val Leu Pro
    1760                1765                1770

Lys Pro  Asp Leu Pro Lys Thr  Ser Gly Lys Val Glu  Leu Leu Pro
    1775                1780                1785

Lys Val  His Ile Tyr Gln Lys  Asp Leu Phe Pro Thr  Glu Thr Ser
    1790                1795                1800

Asn Gly  Ser Pro Gly His Leu  Asp Leu Val Glu Gly  Ser Leu Leu
    1805                1810                1815

Gln Gly  Thr Glu Gly Ala Ile  Lys Trp Asn Glu Ala  Asn Arg Pro
    1820                1825                1830

Gly Lys  Val Pro Phe Leu Arg  Val Ala Thr Glu Ser  Ser Ala Lys
```

```
    1835                1840                1845

Thr Pro  Ser Lys Leu Leu Asp  Pro Leu Ala Trp Asp  Asn His Tyr
    1850                1855                1860

Gly Thr  Gln Ile Pro Lys Glu  Glu Trp Lys Ser Gln  Glu Lys Ser
    1865                1870                1875

Pro Glu  Lys Thr Ala Phe Lys  Lys Lys Asp Thr Ile  Leu Ser Leu
    1880                1885                1890

Asn Ala  Cys Glu Ser Asn His  Ala Ile Ala Ala Ile  Asn Glu Gly
    1895                1900                1905

Gln Asn  Lys Pro Glu Ile Glu  Val Thr Trp Ala Lys  Gln Gly Arg
    1910                1915                1920

Thr Glu  Arg Leu Cys Ser Gln  Asn Pro Pro Val Leu  Lys Arg His
    1925                1930                1935

Gln Arg  Glu Ile Thr Arg Thr  Thr Leu Gln Ser Asp  Gln Glu Glu
    1940                1945                1950

Ile Asp  Tyr Asp Asp Thr Ile  Ser Val Glu Met Lys  Lys Glu Asp
    1955                1960                1965

Phe Asp  Ile Tyr Asp Glu Asp  Glu Asn Gln Ser Pro  Arg Ser Phe
    1970                1975                1980

Gln Lys  Lys Thr Arg His Tyr  Phe Ile Ala Ala Val  Glu Arg Leu
    1985                1990                1995

Trp Asp  Tyr Gly Met Ser Ser  Ser Pro His Val Leu  Arg Asn Arg
    2000                2005                2010

Ala Gln  Ser Gly Ser Val Pro  Gln Phe Lys Lys Val  Val Phe Gln
    2015                2020                2025

Glu Phe  Thr Asp Gly Ser Phe  Thr Gln Pro Leu Tyr  Arg Gly Glu
    2030                2035                2040
```

```
Leu Asn  Glu His Leu Gly Leu  Leu Gly Pro Tyr Ile  Arg Ala Glu
    2045                2050                2055

Val Glu  Asp Asn Ile Met Val  Thr Phe Arg Asn Gln  Ala Ser Arg
    2060                2065                2070

Pro Tyr  Ser Phe Tyr Ser Ser  Leu Ile Ser Tyr Glu  Glu Asp Gln
    2075                2080                2085

Arg Gly  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2090                2095                2100

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu
    2105                2110                2115

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    2120                2125                2130

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2135                2140                2145

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2150                2155                2160

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu
    2165                2170                2175

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    2180                2185                2190

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2195                2200                2205

Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2210                2215                2220

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr
    2225                2230                2235

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr
    2240                2245                2250
```

```
Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2255                 2260                 2265

Gly Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2270                 2275                 2280

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro
    2285                 2290                 2295

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro
    2300                 2305                 2310

Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2315                 2320                 2325

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2330                 2335                 2340

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu
    2345                 2350                 2355

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    2360                 2365                 2370

Glu Gly  Ser Ala Pro Gly Gln  Gly Ala Glu Pro Arg  Lys Asn Phe
    2375                 2380                 2385

Val Lys  Pro Asn Glu Thr Lys  Thr Tyr Phe Trp Lys  Val Gln His
    2390                 2395                 2400

His Met  Ala Pro Thr Lys Asp  Glu Phe Asp Cys Lys  Ala Trp Ala
    2405                 2410                 2415

Tyr Phe  Ser Asp Val Asp Leu  Glu Lys Asp Val His  Ser Gly Leu
    2420                 2425                 2430

Ile Gly  Pro Leu Leu Val Cys  His Thr Asn Thr Leu  Asn Pro Ala
    2435                 2440                 2445

His Gly  Arg Gln Val Thr Val  Gln Glu Phe Ala Leu  Phe Phe Thr
    2450                 2455                 2460
```

```
Ile Phe  Asp Glu Thr Lys Ser  Trp Tyr Phe Thr Glu  Asn Met Glu
    2465                 2470                 2475

Arg Asn  Cys Arg Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    2480                 2485                 2490

Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    2495                 2500                 2505

Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    2510                 2515                 2520

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    2525                 2530                 2535

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    2540                 2545                 2550

Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
    2555                 2560                 2565

Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    2570                 2575                 2580

Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
    2585                 2590                 2595

Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    2600                 2605                 2610

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
    2615                 2620                 2625

Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
    2630                 2635                 2640

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    2645                 2650                 2655

Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
```

```
    2660                2665                2670

Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    2675                2680                2685

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    2690                2695                2700

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    2705                2710                2715

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    2720                2725                2730

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    2735                2740                2745

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    2750                2755                2760

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    2765                2770                2775

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
    2780                2785                2790

Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
    2795                2800                2805

Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
    2810                2815                2820

Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr
    2825                2830                2835

Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp
    2840                2845                2850

Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn
    2855                2860                2865
```

Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu
    2870   2875   2880

Leu Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln
    2885   2890   2895

Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu
    2900   2905   2910

Tyr

<210> 1546
<211> 2304
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1546
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val

```
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Gly Ser Pro Ala Gly Ser
            740                 745                 750

Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
        755                 760                 765

Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
    770                 775                 780
```

```
Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
785                 790                 795                 800


Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
                805                 810                 815


Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
            820                 825                 830


Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr
        835                 840                 845


Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
    850                 855                 860


Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
865                 870                 875                 880


Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro
                885                 890                 895


Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
            900                 905                 910


Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr
        915                 920                 925


Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala
    930                 935                 940


Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
945                 950                 955                 960


Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
                965                 970                 975


Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro
            980                 985                 990


Ser Glu Gly Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
```

995 1000 1005

Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
1010 1015 1020

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
1025 1030 1035

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr
1040 1045 1050

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
1055 1060 1065

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
1070 1075 1080

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1085 1090 1095

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
1100 1105 1110

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
1115 1120 1125

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
1130 1135 1140

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
1145 1150 1155

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
1160 1165 1170

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
1175 1180 1185

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
1190 1195 1200

```
Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1205                 1210                 1215

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1220                 1225                 1230

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1235                 1240                 1245

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1250                 1255                 1260

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1265                 1270                 1275

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    1280                 1285                 1290

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1295                 1300                 1305

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1310                 1315                 1320

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1325                 1330                 1335

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1340                 1345                 1350

Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1355                 1360                 1365

Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1370                 1375                 1380

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
    1385                 1390                 1395

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr
    1400                 1405                 1410
```

```
Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1415                 1420                 1425

Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1430                 1435                 1440

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1445                 1450                 1455

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    1460                 1465                 1470

Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1475                 1480                 1485

Gly Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1490                 1495                 1500

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1505                 1510                 1515

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Glu Pro  Ala Thr Ser
    1520                 1525                 1530

Gly Ser  Glu Thr Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1535                 1540                 1545

Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1550                 1555                 1560

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Glu Pro
    1565                 1570                 1575

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1580                 1585                 1590

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1595                 1600                 1605

Ala Pro  Gly Pro Pro Val Leu  Lys Arg His Gln Arg  Glu Ile Thr
    1610                 1615                 1620
```

```
Arg Thr  Thr Leu Gln Ser Asp  Gln Glu Glu Ile Asp  Tyr Asp Asp
    1625                1630                1635

Thr Ile  Ser Val Glu Met Lys  Lys Glu Asp Phe Asp  Ile Tyr Asp
    1640                1645                1650

Glu Asp  Glu Asn Gln Ser Pro  Arg Ser Phe Gln Lys  Lys Thr Arg
    1655                1660                1665

His Tyr  Phe Ile Ala Ala Val  Glu Arg Leu Trp Asp  Tyr Gly Met
    1670                1675                1680

Ser Ser  Ser Pro His Val Leu  Arg Asn Arg Ala Gln  Ser Gly Ser
    1685                1690                1695

Val Pro  Gln Phe Lys Lys Val  Val Phe Gln Glu Phe  Thr Asp Gly
    1700                1705                1710

Ser Phe  Thr Gln Pro Leu Tyr  Arg Gly Glu Leu Asn  Glu His Leu
    1715                1720                1725

Gly Leu  Leu Gly Pro Tyr Ile  Arg Ala Glu Val Glu  Asp Asn Ile
    1730                1735                1740

Met Val  Thr Phe Arg Asn Gln  Ala Ser Arg Pro Tyr  Ser Phe Tyr
    1745                1750                1755

Ser Ser  Leu Ile Ser Tyr Glu  Glu Asp Gln Arg Gln  Gly Ala Glu
    1760                1765                1770

Pro Arg  Lys Asn Phe Val Lys  Pro Asn Glu Thr Lys  Thr Tyr Phe
    1775                1780                1785

Trp Lys  Val Gln His His Met  Ala Pro Thr Lys Asp  Glu Phe Asp
    1790                1795                1800

Cys Lys  Ala Trp Ala Tyr Phe  Ser Asp Val Asp Leu  Glu Lys Asp
    1805                1810                1815

Val His  Ser Gly Leu Ile Gly  Pro Leu Leu Val Cys  His Thr Asn
```

```
    1820                1825                1830

Thr Leu  Asn Pro Ala His Gly  Arg Gln Val Thr Val  Gln Glu Phe
    1835                1840                1845

Ala Leu  Phe Phe Thr Ile Phe  Asp Glu Thr Lys Ser  Trp Tyr Phe
    1850                1855                1860

Thr Glu  Asn Met Glu Arg Asn  Cys Arg Ala Pro Cys  Asn Ile Gln
    1865                1870                1875

Met Glu  Asp Pro Thr Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile
    1880                1885                1890

Asn Gly  Tyr Ile Met Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln
    1895                1900                1905

Asp Gln  Arg Ile Arg Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu
    1910                1915                1920

Asn Ile  His Ser Ile His Phe  Ser Gly His Val Phe  Thr Val Arg
    1925                1930                1935

Lys Lys  Glu Glu Tyr Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly
    1940                1945                1950

Val Phe  Glu Thr Val Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp
    1955                1960                1965

Arg Val  Glu Cys Leu Ile Gly  Glu His Leu His Ala  Gly Met Ser
    1970                1975                1980

Thr Leu  Phe Leu Val Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly
    1985                1990                1995

Met Ala  Ser Gly His Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly
    2000                2005                2010

Gln Tyr  Gly Gln Trp Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser
    2015                2020                2025
```

```
Gly Ser  Ile Asn Ala Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile
    2030                2035                2040

Lys Val  Asp Leu Leu Ala Pro  Met Ile Ile His Gly  Ile Lys Thr
    2045                2050                2055

Gln Gly  Ala Arg Gln Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe
    2060                2065                2070

Ile Ile  Met Tyr Ser Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg
    2075                2080                2085

Gly Asn  Ser Thr Gly Thr Leu  Met Val Phe Phe Gly  Asn Val Asp
    2090                2095                2100

Ser Ser  Gly Ile Lys His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala
    2105                2110                2115

Arg Tyr  Ile Arg Leu His Pro  Thr His Tyr Ser Ile  Arg Ser Thr
    2120                2125                2130

Leu Arg  Met Glu Leu Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met
    2135                2140                2145

Pro Leu  Gly Met Glu Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr
    2150                2155                2160

Ala Ser  Ser Tyr Phe Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser
    2165                2170                2175

Lys Ala  Arg Leu His Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro
    2180                2185                2190

Gln Val  Asn Asn Pro Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys
    2195                2200                2205

Thr Met  Lys Val Thr Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu
    2210                2215                2220

Leu Thr  Ser Met Tyr Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln
    2225                2230                2235
```

Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val Lys
    2240   2245   2250

Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn Ser
    2255   2260   2265

Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro Gln
    2270   2275   2280

Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys
    2285   2290   2295

Glu Ala Gln Asp Leu Tyr
    2300

<210> 1547
<211> 1728
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1547
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540
```

```
Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Gly Thr Ser Glu Ser Ala
            740                 745                 750

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
```

```
        755                 760                 765

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
    770                 775                 780

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
785                 790                 795                 800

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
                805                 810                 815

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
            820                 825                 830

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
        835                 840                 845

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
    850                 855                 860

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
865                 870                 875                 880

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
                885                 890                 895

Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
            900                 905                 910

Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
        915                 920                 925

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
    930                 935                 940

Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
945                 950                 955                 960

Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
                965                 970                 975
```

```
Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro
            980                 985                 990

Ser Glu Gly Ser Ala Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
        995                 1000                1005

Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1010                1015                1020

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Pro Pro Val
    1025                1030                1035

Leu Lys  Arg His Gln Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser
    1040                1045                1050

Asp Gln  Glu Glu Ile Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met
    1055                1060                1065

Lys Lys  Glu Asp Phe Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser
    1070                1075                1080

Pro Arg  Ser Phe Gln Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala
    1085                1090                1095

Val Glu  Arg Leu Trp Asp Tyr  Gly Met Ser Ser Ser  Pro His Val
    1100                1105                1110

Leu Arg  Asn Arg Ala Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys
    1115                1120                1125

Val Val  Phe Gln Glu Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu
    1130                1135                1140

Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr
    1145                1150                1155

Ile Arg  Ala Glu Val Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn
    1160                1165                1170

Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr
    1175                1180                1185
```

```
Glu Glu  Asp Gln Arg Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val
    1190                1195                1200

Lys Pro  Asn Glu Thr Lys Thr  Tyr Phe Trp Lys Val  Gln His His
    1205                1210                1215

Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr
    1220                1225                1230

Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val His Ser  Gly Leu Ile
    1235                1240                1245

Gly Pro  Leu Leu Val Cys His  Thr Asn Thr Leu Asn  Pro Ala His
    1250                1255                1260

Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile
    1265                1270                1275

Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg
    1280                1285                1290

Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe
    1295                1300                1305

Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp
    1310                1315                1320

Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp
    1325                1330                1335

Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn Ile His  Ser Ile His
    1340                1345                1350

Phe Ser  Gly His Val Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys
    1355                1360                1365

Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu
    1370                1375                1380

Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile
    1385                1390                1395
```

```
Gly Glu  His Leu His Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr
    1400                1405                1410

Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met Ala Ser  Gly His Ile
    1415                1420                1425

Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala
    1430                1435                1440

Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp
    1445                1450                1455

Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala
    1460                1465                1470

Pro Met  Ile Ile His Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys
    1475                1480                1485

Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu
    1490                1495                1500

Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr
    1505                1510                1515

Leu Met  Val Phe Phe Gly Asn  Val Asp Ser Ser Gly  Ile Lys His
    1520                1525                1530

Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His
    1535                1540                1545

Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met
    1550                1555                1560

Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser
    1565                1570                1575

Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr
    1580                1585                1590

Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu
```

1595 1600 1605

Gln Gly Arg Ser Asn Ala Trp Arg Pro Gln Val Asn Asn Pro Lys
1610 1615 1620

Glu Trp Leu Gln Val Asp Phe Gln Lys Thr Met Lys Val Thr Gly
1625 1630 1635

Val Thr Thr Gln Gly Val Lys Ser Leu Leu Thr Ser Met Tyr Val
1640 1645 1650

Lys Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln Trp Thr
1655 1660 1665

Leu Phe Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn Gln
1670 1675 1680

Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu
1685 1690 1695

Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile
1700 1705 1710

Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr
1715 1720 1725

<210> 1548
<211> 1728
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1548
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

```
Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
```

```
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480
```

```
Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700
```

```
Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gly Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750


Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        755                 760                 765


Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
    770                 775                 780


Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
785                 790                 795                 800


Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                805                 810                 815


Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
            820                 825                 830


Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        835                 840                 845


Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    850                 855                 860


Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
865                 870                 875                 880


Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                885                 890                 895


Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            900                 905                 910


Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
        915                 920                 925
```

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    930                 935                 940

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
945                 950                 955                 960

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                965                 970                 975

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            980                 985                 990

Gly Ser Ala Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
        995                 1000                1005

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1010                1015                1020

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Gln Asn  Pro Pro Val
    1025                1030                1035

Leu Lys  Arg His Gln Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser
    1040                1045                1050

Asp Gln  Glu Glu Ile Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met
    1055                1060                1065

Lys Lys  Glu Asp Phe Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser
    1070                1075                1080

Pro Arg  Ser Phe Gln Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala
    1085                1090                1095

Val Glu  Arg Leu Trp Asp Tyr  Gly Met Ser Ser Ser  Pro His Val
    1100                1105                1110

Leu Arg  Asn Arg Ala Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys
    1115                1120                1125

Val Val  Phe Gln Glu Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu
```

1130 1135 1140

Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr
1145 1150 1155

Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn
1160 1165 1170

Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr
1175 1180 1185

Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val
1190 1195 1200

Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
1205 1210 1215

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr
1220 1225 1230

Phe Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile
1235 1240 1245

Gly Pro Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His
1250 1255 1260

Gly Arg Gln Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile
1265 1270 1275

Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg
1280 1285 1290

Asn Cys Arg Ala Pro Cys Asn Ile Gln Met Glu Asp Pro Thr Phe
1295 1300 1305

Lys Glu Asn Tyr Arg Phe His Ala Ile Asn Gly Tyr Ile Met Asp
1310 1315 1320

Thr Leu Pro Gly Leu Val Met Ala Gln Asp Gln Arg Ile Arg Trp
1325 1330 1335

```
Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn Ile His  Ser Ile His
    1340                1345                1350

Phe Ser  Gly His Val Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys
    1355                1360                1365

Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu
    1370                1375                1380

Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile
    1385                1390                1395

Gly Glu  His Leu His Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr
    1400                1405                1410

Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met Ala Ser  Gly His Ile
    1415                1420                1425

Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala
    1430                1435                1440

Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp
    1445                1450                1455

Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala
    1460                1465                1470

Pro Met  Ile Ile His Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys
    1475                1480                1485

Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu
    1490                1495                1500

Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr
    1505                1510                1515

Leu Met  Val Phe Phe Gly Asn  Val Asp Ser Ser Gly  Ile Lys His
    1520                1525                1530

Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His
    1535                1540                1545
```

```
Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met
    1550                1555                1560

Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser
    1565                1570                1575

Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr
    1580                1585                1590

Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu
    1595                1600                1605

Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys
    1610                1615                1620

Glu Trp  Leu Gln Val Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly
    1625                1630                1635

Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val
    1640                1645                1650

Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr
    1655                1660                1665

Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln
    1670                1675                1680

Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu
    1685                1690                1695

Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser Trp Val  His Gln Ile
    1700                1705                1710

Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1715                1720                1725
```

<210> 1549
<211> 2046
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1549

```
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                   10                  15


Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30


Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45


Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60


Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80


Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95


Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110


Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125


Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140


Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160


His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175


Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190


His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205
```

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
```

```
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Pro Gly Ala Ser Pro Gly
            740                 745                 750

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        755                 760                 765

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
    770                 775                 780

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser
785                 790                 795                 800

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
                805                 810                 815

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
            820                 825                 830

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
        835                 840                 845

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    850                 855                 860
```

```
Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
865                 870                 875                 880


Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
                885                 890                 895


Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            900                 905                 910


Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
        915                 920                 925


Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
    930                 935                 940


Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960


Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                965                 970                 975


Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
            980                 985                 990


Thr Ser Ser Thr Gly Ser Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
        995                 1000                1005


Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1010                1015                1020


Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Gly  Pro Pro Val
    1025                1030                1035


Leu Lys  Arg His Gln Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser
    1040                1045                1050


Asp Gln  Glu Glu Ile Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met
    1055                1060                1065


Lys Lys  Glu Asp Phe Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser
    1070                1075                1080
```

```
Pro Arg  Ser Phe Gln Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala
    1085                1090                1095

Val Glu  Arg Leu Trp Asp Tyr  Gly Met Ser Ser Ser  Pro His Val
    1100                1105                1110

Leu Arg  Asn Arg Ala Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys
    1115                1120                1125

Val Val  Phe Gln Glu Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu
    1130                1135                1140

Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr
    1145                1150                1155

Ile Arg  Ala Glu Val Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn
    1160                1165                1170

Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr
    1175                1180                1185

Glu Glu  Asp Gln Arg Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val
    1190                1195                1200

Lys Pro  Asn Glu Thr Lys Thr  Tyr Phe Trp Lys Val  Gln His His
    1205                1210                1215

Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr
    1220                1225                1230

Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val His Ser  Gly Leu Ile
    1235                1240                1245

Gly Pro  Leu Leu Val Cys His  Thr Asn Thr Leu Asn  Pro Ala His
    1250                1255                1260

Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile
    1265                1270                1275

Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg
    1280                1285                1290
```

```
Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe
    1295                1300                1305

Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp
    1310                1315                1320

Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp
    1325                1330                1335

Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn Ile His  Ser Ile His
    1340                1345                1350

Phe Ser  Gly His Val Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys
    1355                1360                1365

Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu
    1370                1375                1380

Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile
    1385                1390                1395

Gly Glu  His Leu His Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr
    1400                1405                1410

Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met Ala Ser  Gly His Ile
    1415                1420                1425

Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala
    1430                1435                1440

Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp
    1445                1450                1455

Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala
    1460                1465                1470

Pro Met  Ile Ile His Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys
    1475                1480                1485

Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu
```

1490 1495 1500

Asp Gly Lys Lys Trp Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr
1505 1510 1515

Leu Met Val Phe Phe Gly Asn Val Asp Ser Ser Gly Ile Lys His
1520 1525 1530

Asn Ile Phe Asn Pro Pro Ile Ile Ala Arg Tyr Ile Arg Leu His
1535 1540 1545

Pro Thr His Tyr Ser Ile Arg Ser Thr Leu Arg Met Glu Leu Met
1550 1555 1560

Gly Cys Asp Leu Asn Ser Cys Ser Met Pro Leu Gly Met Glu Ser
1565 1570 1575

Lys Ala Ile Ser Asp Ala Gln Ile Thr Ala Ser Ser Tyr Phe Thr
1580 1585 1590

Asn Met Phe Ala Thr Trp Ser Pro Ser Lys Ala Arg Leu His Leu
1595 1600 1605

Gln Gly Arg Ser Asn Ala Trp Arg Pro Gln Val Asn Asn Pro Lys
1610 1615 1620

Glu Trp Leu Gln Val Asp Phe Gln Lys Thr Met Lys Val Thr Gly
1625 1630 1635

Val Thr Thr Gln Gly Val Lys Ser Leu Leu Thr Ser Met Tyr Val
1640 1645 1650

Lys Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln Trp Thr
1655 1660 1665

Leu Phe Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn Gln
1670 1675 1680

Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu
1685 1690 1695

```
Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser Trp Val  His Gln Ile
    1700                1705                1710

Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1715                1720                1725

Gly Ala  Gly Ser Pro Gly Ala  Glu Thr Ala Pro Gly  Ala Ser Pro
    1730                1735                1740

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1745                1750                1755

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1760                1765                1770

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1775                1780                1785

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1790                1795                1800

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1805                1810                1815

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1820                1825                1830

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1835                1840                1845

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1850                1855                1860

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1865                1870                1875

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1880                1885                1890

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1895                1900                1905
```

```
Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1910                1915                1920


Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1925                1930                1935


Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1940                1945                1950


Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1955                1960                1965


Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1970                1975                1980


Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    1985                1990                1995


Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    2000                2005                2010


Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Gly Ala
    2015                2020                2025


Glu Thr  Ala Glu Gln Lys Leu  Ile Ser Glu Glu Asp  Leu Ser Pro
    2030                2035                2040


Ala Thr  Gly
    2045


<210> 1550
<211> 2046
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1550
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                  10                  15
```

```
Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240
```

```
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460
```

```
Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
```

```
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gly Pro Gly Ala Ser Pro Gly Thr Ser
            740                 745                 750

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        755                 760                 765

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
    770                 775                 780

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
785                 790                 795                 800

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                805                 810                 815

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
            820                 825                 830

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
        835                 840                 845

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
    850                 855                 860

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
865                 870                 875                 880

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
                885                 890                 895
```

```
Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
            900                 905                 910

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
        915                 920                 925

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
    930                 935                 940

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
945                 950                 955                 960

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
                965                 970                 975

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
            980                 985                 990

Ser Thr Gly Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
        995                 1000                1005

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1010                1015                1020

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Gly Gln Asn  Pro Pro Val
    1025                1030                1035

Leu Lys  Arg His Gln Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser
    1040                1045                1050

Asp Gln  Glu Glu Ile Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met
    1055                1060                1065

Lys Lys  Glu Asp Phe Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser
    1070                1075                1080

Pro Arg  Ser Phe Gln Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala
    1085                1090                1095

Val Glu  Arg Leu Trp Asp Tyr  Gly Met Ser Ser Ser  Pro His Val
    1100                1105                1110
```

```
Leu Arg  Asn Arg Ala Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys
    1115                1120                1125

Val Val  Phe Gln Glu Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu
    1130                1135                1140

Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr
    1145                1150                1155

Ile Arg  Ala Glu Val Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn
    1160                1165                1170

Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr
    1175                1180                1185

Glu Glu  Asp Gln Arg Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val
    1190                1195                1200

Lys Pro  Asn Glu Thr Lys Thr  Tyr Phe Trp Lys Val  Gln His His
    1205                1210                1215

Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr
    1220                1225                1230

Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val His Ser  Gly Leu Ile
    1235                1240                1245

Gly Pro  Leu Leu Val Cys His  Thr Asn Thr Leu Asn  Pro Ala His
    1250                1255                1260

Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile
    1265                1270                1275

Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg
    1280                1285                1290

Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe
    1295                1300                1305

Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp
    1310                1315                1320
```

```
Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp
    1325                1330                1335

Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn Ile His  Ser Ile His
    1340                1345                1350

Phe Ser  Gly His Val Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys
    1355                1360                1365

Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu
    1370                1375                1380

Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile
    1385                1390                1395

Gly Glu  His Leu His Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr
    1400                1405                1410

Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met Ala Ser  Gly His Ile
    1415                1420                1425

Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala
    1430                1435                1440

Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp
    1445                1450                1455

Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala
    1460                1465                1470

Pro Met  Ile Ile His Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys
    1475                1480                1485

Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu
    1490                1495                1500

Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr
    1505                1510                1515

Leu Met  Val Phe Phe Gly Asn  Val Asp Ser Ser Gly  Ile Lys His
```

```
    1520                1525                1530

Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His
    1535                1540                1545

Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met
    1550                1555                1560

Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser
    1565                1570                1575

Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr
    1580                1585                1590

Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu
    1595                1600                1605

Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys
    1610                1615                1620

Glu Trp  Leu Gln Val Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly
    1625                1630                1635

Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val
    1640                1645                1650

Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr
    1655                1660                1665

Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln
    1670                1675                1680

Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu
    1685                1690                1695

Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser Trp Val  His Gln Ile
    1700                1705                1710

Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1715                1720                1725
```

```
Gly Ala  Gly Ser Pro Gly Ala  Glu Thr Ala Pro Gly  Ala Ser Pro
    1730                1735                1740

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1745                1750                1755

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1760                1765                1770

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1775                1780                1785

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1790                1795                1800

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1805                1810                1815

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1820                1825                1830

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1835                1840                1845

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1850                1855                1860

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1865                1870                1875

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    1880                1885                1890

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1895                1900                1905

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    1910                1915                1920

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    1925                1930                1935
```

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
1940 1945 1950

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
1955 1960 1965

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
1970 1975 1980

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
1985 1990 1995

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
2000 2005 2010

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Gly Ala
2015 2020 2025

Glu Thr Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ser Pro
2030 2035 2040

Ala Thr Gly
2045

<210> 1551
<211> 2017
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1551
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

```
Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
```

```
Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495
```

```
His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
```

```
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Gly Thr Ser Glu Ser Ala
            740                 745                 750

Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
        755                 760                 765

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser
    770                 775                 780

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
785                 790                 795                 800

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
                805                 810                 815

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
            820                 825                 830

Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
        835                 840                 845

Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
    850                 855                 860

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser
865                 870                 875                 880

Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
                885                 890                 895

Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
            900                 905                 910

Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr
        915                 920                 925
```

```
Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
    930                 935                 940

Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
945                 950                 955                 960

Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr
                965                 970                 975

Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro
            980                 985                 990

Ser Glu Gly Ser Ala Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
        995                 1000                1005

Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1010                1015                1020

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Pro Pro Val
    1025                1030                1035

Leu Lys  Arg His Gln Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser
    1040                1045                1050

Asp Gln  Glu Glu Ile Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met
    1055                1060                1065

Lys Lys  Glu Asp Phe Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser
    1070                1075                1080

Pro Arg  Ser Phe Gln Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala
    1085                1090                1095

Val Glu  Arg Leu Trp Asp Tyr  Gly Met Ser Ser Ser  Pro His Val
    1100                1105                1110

Leu Arg  Asn Arg Ala Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys
    1115                1120                1125

Val Val  Phe Gln Glu Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu
    1130                1135                1140
```

```
Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr
    1145                1150                1155

Ile Arg  Ala Glu Val Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn
    1160                1165                1170

Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr
    1175                1180                1185

Glu Glu  Asp Gln Arg Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val
    1190                1195                1200

Lys Pro  Asn Glu Thr Lys Thr  Tyr Phe Trp Lys Val  Gln His His
    1205                1210                1215

Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr
    1220                1225                1230

Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val His Ser  Gly Leu Ile
    1235                1240                1245

Gly Pro  Leu Leu Val Cys His  Thr Asn Thr Leu Asn  Pro Ala His
    1250                1255                1260

Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile
    1265                1270                1275

Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg
    1280                1285                1290

Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe
    1295                1300                1305

Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp
    1310                1315                1320

Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp
    1325                1330                1335

Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn Ile His  Ser Ile His
    1340                1345                1350
```

```
Phe Ser  Gly His Val Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys
    1355                 1360                 1365

Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu
    1370                 1375                 1380

Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile
    1385                 1390                 1395

Gly Glu  His Leu His Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr
    1400                 1405                 1410

Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met Ala Ser  Gly His Ile
    1415                 1420                 1425

Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala
    1430                 1435                 1440

Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp
    1445                 1450                 1455

Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala
    1460                 1465                 1470

Pro Met  Ile Ile His Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys
    1475                 1480                 1485

Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu
    1490                 1495                 1500

Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr
    1505                 1510                 1515

Leu Met  Val Phe Phe Gly Asn  Val Asp Ser Ser Gly  Ile Lys His
    1520                 1525                 1530

Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His
    1535                 1540                 1545

Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met
```

```
    1550                1555                1560

Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser
    1565                1570                1575

Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr
    1580                1585                1590

Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu
    1595                1600                1605

Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys
    1610                1615                1620

Glu Trp  Leu Gln Val Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly
    1625                1630                1635

Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val
    1640                1645                1650

Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr
    1655                1660                1665

Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln
    1670                1675                1680

Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu
    1685                1690                1695

Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser Trp Val  His Gln Ile
    1700                1705                1710

Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1715                1720                1725

Gly Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1730                1735                1740

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1745                1750                1755
```

```
Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1760                1765                1770

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1775                1780                1785

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1790                1795                1800

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1805                1810                1815

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1820                1825                1830

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1835                1840                1845

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    1865                1870                1875

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1880                1885                1890

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1910                1915                1920

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1940                1945                1950

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1955                1960                1965
```

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser
    1970   1975   1980

Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
    1985   1990   1995

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
    2000   2005   2010

Gly Ser Ala Pro
    2015

<210> 1552
<211> 2017
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1552
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

```
Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335
```

```
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560
```

```
Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gly Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        755                 760                 765

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
```

```
    770                 775                 780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
785                 790                 795                 800

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                805                 810                 815

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
            820                 825                 830

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        835                 840                 845

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    850                 855                 860

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
865                 870                 875                 880

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                885                 890                 895

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            900                 905                 910

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
        915                 920                 925

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
    930                 935                 940

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
945                 950                 955                 960

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                965                 970                 975

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            980                 985                 990
```

```
Gly Ser Ala Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
        995                 1000                1005


Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1010                1015                1020


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Gln Asn  Pro Pro Val
    1025                1030                1035


Leu Lys  Arg His Gln Ala Glu  Ile Thr Arg Thr Thr  Leu Gln Ser
    1040                1045                1050


Asp Gln  Glu Glu Ile Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met
    1055                1060                1065


Lys Lys  Glu Asp Phe Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser
    1070                1075                1080


Pro Arg  Ser Phe Gln Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala
    1085                1090                1095


Val Glu  Arg Leu Trp Asp Tyr  Gly Met Ser Ser Ser  Pro His Val
    1100                1105                1110


Leu Arg  Asn Arg Ala Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys
    1115                1120                1125


Val Val  Phe Gln Glu Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu
    1130                1135                1140


Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr
    1145                1150                1155


Ile Arg  Ala Glu Val Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn
    1160                1165                1170


Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr
    1175                1180                1185


Glu Glu  Asp Gln Arg Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val
    1190                1195                1200
```

```
Lys Pro  Asn Glu Thr Lys Thr  Tyr Phe Trp Lys Val  Gln His His
    1205                1210                1215

Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr
    1220                1225                1230

Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val His Ser  Gly Leu Ile
    1235                1240                1245

Gly Pro  Leu Leu Val Cys His  Thr Asn Thr Leu Asn  Pro Ala His
    1250                1255                1260

Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile
    1265                1270                1275

Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg
    1280                1285                1290

Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe
    1295                1300                1305

Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp
    1310                1315                1320

Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp
    1325                1330                1335

Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn Ile His  Ser Ile His
    1340                1345                1350

Phe Ser  Gly His Val Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys
    1355                1360                1365

Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu
    1370                1375                1380

Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile
    1385                1390                1395

Gly Glu  His Leu His Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr
    1400                1405                1410
```

```
Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met Ala Ser  Gly His Ile
    1415                 1420                 1425

Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala
    1430                 1435                 1440

Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp
    1445                 1450                 1455

Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala
    1460                 1465                 1470

Pro Met  Ile Ile His Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys
    1475                 1480                 1485

Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu
    1490                 1495                 1500

Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr
    1505                 1510                 1515

Leu Met  Val Phe Phe Gly Asn  Val Asp Ser Ser Gly  Ile Lys His
    1520                 1525                 1530

Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His
    1535                 1540                 1545

Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met
    1550                 1555                 1560

Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser
    1565                 1570                 1575

Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr
    1580                 1585                 1590

Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu
    1595                 1600                 1605

Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys
```

```
    1610                1615                1620

Glu Trp  Leu Gln Val Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly
    1625                1630                1635

Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val
    1640                1645                1650

Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr
    1655                1660                1665

Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln
    1670                1675                1680

Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu
    1685                1690                1695

Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser Trp Val  His Gln Ile
    1700                1705                1710

Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1715                1720                1725

Gly Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1730                1735                1740

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1745                1750                1755

Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1760                1765                1770

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1775                1780                1785

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1790                1795                1800

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser
    1805                1810                1815
```

```
Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly
    1820                1825                1830

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1835                1840                1845

Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser
    1850                1855                1860

Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu
    1865                1870                1875

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1880                1885                1890

Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly
    1895                1900                1905

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1910                1915                1920

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala
    1925                1930                1935

Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr
    1940                1945                1950

Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala
    1955                1960                1965

Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser
    1970                1975                1980

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser
    1985                1990                1995

Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu
    2000                2005                2010

Gly Ser  Ala Pro
    2015
```

<210> 1553
<211> 2045
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1553
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

```
Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655


Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Pro Gly Ala Ser Pro Gly
            740                 745                 750


Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        755                 760                 765


Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
    770                 775                 780


Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser
785                 790                 795                 800


Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
                805                 810                 815


Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
            820                 825                 830


Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
```

```
        835                 840                 845

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    850                 855                 860

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
865                 870                 875                 880

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
                885                 890                 895

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            900                 905                 910

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
        915                 920                 925

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                965                 970                 975

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
        995                 1000                1005

Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Pro Val Leu
    1025                1030                1035

Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr Thr Leu  Gln Ser Asp
    1040                1045                1050
```

```
Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile Ser Val  Glu Met Lys
    1055                1060                1065

Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp Glu Asn  Gln Ser Pro
    1070                1075                1080

Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr Phe Ile  Ala Ala Val
    1085                1090                1095

Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser Ser Pro  His Val Leu
    1100                1105                1110

Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro Gln Phe  Lys Lys Val
    1115                1120                1125

Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe Thr Gln  Pro Leu Tyr
    1130                1135                1140

Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu Leu Gly  Pro Tyr Ile
    1145                1150                1155

Arg Ala  Glu Val Glu Asp Asn  Ile Met Val Thr Phe  Arg Asn Gln
    1160                1165                1170

Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser Leu Ile  Ser Tyr Glu
    1175                1180                1185

Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg Lys Asn  Phe Val Lys
    1190                1195                1200

Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys Val Gln  His His Met
    1205                1210                1215

Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe
    1220                1225                1230

Ser Asp  Val Asp Leu Glu Lys  Asp Val His Ser Gly  Leu Ile Gly
    1235                1240                1245

Pro Leu  Leu Val Cys His Thr  Asn Thr Leu Asn Pro  Ala His Gly
    1250                1255                1260
```

```
Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
    1265                1270                1275

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    1280                1285                1290

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    1295                1300                1305

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    1310                1315                1320

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    1325                1330                1335

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    1340                1345                1350

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    1355                1360                1365

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
    1370                1375                1380

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    1385                1390                1395

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
    1400                1405                1410

Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
    1415                1420                1425

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    1430                1435                1440

Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    1445                1450                1455

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    1460                1465                1470
```

```
Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    1475                1480                1485

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    1490                1495                1500

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    1505                1510                1515

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    1520                1525                1530

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    1535                1540                1545

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    1550                1555                1560

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    1565                1570                1575

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    1580                1585                1590

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    1595                1600                1605

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    1610                1615                1620

Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    1625                1630                1635

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    1640                1645                1650

Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    1655                1660                1665

Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
```

```
    1670                1675                1680

Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    1685                1690                1695

Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
    1700                1705                1710

Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr Gly
    1715                1720                1725

Ala Gly  Ser Pro Gly Ala Glu  Thr Ala Pro Gly Ala  Ser Pro Gly
    1730                1735                1740

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1745                1750                1755

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1760                1765                1770

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
    1775                1780                1785

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1790                1795                1800

Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1805                1810                1815

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1820                1825                1830

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1835                1840                1845

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser
    1850                1855                1860

Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1865                1870                1875
```

```
Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1880                1885                1890

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1895                1900                1905

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser
    1910                1915                1920

Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1925                1930                1935

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1940                1945                1950

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1955                1960                1965

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1970                1975                1980

Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1985                1990                1995

Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    2000                2005                2010

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Gly Ala Glu
    2015                2020                2025

Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    2030                2035                2040

Thr Gly
    2045
```

<210> 1554
<211> 2045
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<400> 1554

```
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                  10                  15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205
```

```
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430
```

```
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
```

```
Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gly Pro Gly Ala Ser Pro Gly Thr Ser
            740                 745                 750

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        755                 760                 765

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
    770                 775                 780

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
785                 790                 795                 800

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                805                 810                 815

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
            820                 825                 830

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
        835                 840                 845

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
    850                 855                 860

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
```

```
865                 870                 875                 880

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
                885                 890                 895

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
            900                 905                 910

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
        915                 920                 925

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
    930                 935                 940

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
945                 950                 955                 960

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
                965                 970                 975

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
            980                 985                 990

Ser Thr Gly Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
        995                 1000                1005

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1010                1015                1020

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Gln Asn Pro  Pro Val Leu
    1025                1030                1035

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

Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile Ser Val  Glu Met Lys
    1055                1060                1065

Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp Glu Asn  Gln Ser Pro
    1070                1075                1080
```

```
Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr Phe Ile  Ala Ala Val
    1085                1090                1095

Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser Ser Pro  His Val Leu
    1100                1105                1110

Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro Gln Phe  Lys Lys Val
    1115                1120                1125

Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe Thr Gln  Pro Leu Tyr
    1130                1135                1140

Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu Leu Gly  Pro Tyr Ile
    1145                1150                1155

Arg Ala  Glu Val Glu Asp Asn  Ile Met Val Thr Phe  Arg Asn Gln
    1160                1165                1170

Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser Leu Ile  Ser Tyr Glu
    1175                1180                1185

Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg Lys Asn  Phe Val Lys
    1190                1195                1200

Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys Val Gln  His His Met
    1205                1210                1215

Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe
    1220                1225                1230

Ser Asp  Val Asp Leu Glu Lys  Asp Val His Ser Gly  Leu Ile Gly
    1235                1240                1245

Pro Leu  Leu Val Cys His Thr  Asn Thr Leu Asn Pro  Ala His Gly
    1250                1255                1260

Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
    1265                1270                1275

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    1280                1285                1290
```

```
Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    1295                1300                1305

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    1310                1315                1320

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    1325                1330                1335

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    1340                1345                1350

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    1355                1360                1365

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
    1370                1375                1380

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    1385                1390                1395

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
    1400                1405                1410

Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
    1415                1420                1425

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    1430                1435                1440

Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    1445                1450                1455

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    1460                1465                1470

Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    1475                1480                1485

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    1490                1495                1500
```

```
Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    1505                1510                1515

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    1520                1525                1530

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    1535                1540                1545

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    1550                1555                1560

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    1565                1570                1575

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    1580                1585                1590

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    1595                1600                1605

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    1610                1615                1620

Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    1625                1630                1635

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    1640                1645                1650

Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    1655                1660                1665

Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
    1670                1675                1680

Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    1685                1690                1695

Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
```

```
    1700                1705                1710

Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr Gly
    1715                1720                1725

Ala Gly  Ser Pro Gly Ala Glu  Thr Ala Pro Gly Ala  Ser Pro Gly
    1730                1735                1740

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1745                1750                1755

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1760                1765                1770

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
    1775                1780                1785

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1790                1795                1800

Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1805                1810                1815

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1820                1825                1830

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1835                1840                1845

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser
    1850                1855                1860

Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1865                1870                1875

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1880                1885                1890

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1895                1900                1905
```

```
Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser
    1910                1915                1920


Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1925                1930                1935


Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1940                1945                1950


Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1955                1960                1965


Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1970                1975                1980


Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1985                1990                1995


Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    2000                2005                2010


Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Gly Ala Glu
    2015                2020                2025


Thr Ala  Glu Gln Lys Leu Ile  Ser Glu Glu Asp Leu  Ser Pro Ala
    2030                2035                2040


Thr Gly
    2045


<210> 1555
<211> 2301
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1555
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1               5                  10                  15


Cys Phe Ser Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
```

```
            20                  25                  30

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
        35                  40                  45

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
    50                  55                  60

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
65                  70                  75                  80

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
                85                  90                  95

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
            100                 105                 110

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        115                 120                 125

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly
    130                 135                 140

Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser
145                 150                 155                 160

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                165                 170                 175

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser
            180                 185                 190

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
        195                 200                 205

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
    210                 215                 220

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly
225                 230                 235                 240
```

```
Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
                245                 250                 255

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            260                 265                 270

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
        275                 280                 285

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    290                 295                 300

Ser Ala Pro Gln Ser Pro Arg Ser Phe Gln Gly Pro Glu Gly Pro Ser
305                 310                 315                 320

Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
                325                 330                 335

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            340                 345                 350

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        355                 360                 365

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    370                 375                 380

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
385                 390                 395                 400

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                405                 410                 415

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            420                 425                 430

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        435                 440                 445

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    450                 455                 460
```

```
Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
465                 470                 475                 480


His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                485                 490                 495


Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            500                 505                 510


His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        515                 520                 525


His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    530                 535                 540


Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
545                 550                 555                 560


Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                565                 570                 575


Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            580                 585                 590


Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        595                 600                 605


Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    610                 615                 620


Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
625                 630                 635                 640


Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                645                 650                 655


Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            660                 665                 670


Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        675                 680                 685
```

```
Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    690                 695                 700

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
705                 710                 715                 720

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                725                 730                 735

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            740                 745                 750

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        755                 760                 765

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    770                 775                 780

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
785                 790                 795                 800

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                805                 810                 815

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            820                 825                 830

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        835                 840                 845

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    850                 855                 860

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
865                 870                 875                 880

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                885                 890                 895

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
```

```
            900                 905                 910

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        915                 920                 925

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    930                 935                 940

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
945                 950                 955                 960

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                965                 970                 975

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            980                 985                 990

Phe Ser Gly Glu Thr Val Phe Met  Ser Met Glu Asn Pro  Gly Leu Trp
        995                 1000                1005

Ile Leu  Gly Cys His Asn Ser  Asp Phe Arg Asn Arg  Gly Met Thr
    1010                1015                1020

Ala Leu  Leu Lys Val Ser Ser  Cys Asp Lys Asn Thr  Gly Asp Tyr
    1025                1030                1035

Tyr Glu  Asp Ser Tyr Glu Asp  Ile Ser Ala Tyr Leu  Leu Ser Lys
    1040                1045                1050

Asn Asn  Ala Ile Glu Pro Arg  Ser Phe Ser Gln Asn  Gly Thr Ser
    1055                1060                1065

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1070                1075                1080

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1085                1090                1095

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1100                1105                1110
```

```
Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1115                1120                1125


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1130                1135                1140


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1145                1150                1155


Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1160                1165                1170


Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1175                1180                1185


Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    1190                1195                1200


Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1205                1210                1215


Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1220                1225                1230


Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1235                1240                1245


Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1250                1255                1260


Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1265                1270                1275


Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1280                1285                1290


Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1295                1300                1305


Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Glu  Pro Ala Thr
    1310                1315                1320
```

```
Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1325                1330                1335

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1340                1345                1350

Gln Ser  Pro Arg Ser Phe Gln  Lys Lys Thr Arg His  Tyr Phe Ile
    1355                1360                1365

Ala Ala  Val Glu Arg Leu Trp  Asp Tyr Gly Met Ser  Ser Ser Pro
    1370                1375                1380

His Val  Leu Arg Asn Arg Ala  Gln Ser Gly Ser Val  Pro Gln Phe
    1385                1390                1395

Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp Gly Ser  Phe Thr Gln
    1400                1405                1410

Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His Leu Gly  Leu Leu Gly
    1415                1420                1425

Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn Ile Met  Val Thr Phe
    1430                1435                1440

Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe Tyr Ser  Ser Leu Ile
    1445                1450                1455

Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala Glu Pro  Arg Lys Asn
    1460                1465                1470

Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr Phe Trp  Lys Val Gln
    1475                1480                1485

His His  Met Ala Pro Thr Lys  Asp Glu Phe Asp Cys  Lys Ala Trp
    1490                1495                1500

Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys Asp Val  His Ser Gly
    1505                1510                1515

Leu Ile  Gly Pro Leu Leu Val  Cys His Thr Asn Thr  Leu Asn Pro
    1520                1525                1530
```

```
Ala His  Gly Arg Gln Val Thr  Val Gln Glu Phe Ala  Leu Phe Phe
    1535                1540                1545

Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr Phe Thr  Glu Asn Met
    1550                1555                1560

Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile Gln Met  Glu Asp Pro
    1565                1570                1575

Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala Ile Asn  Gly Tyr Ile
    1580                1585                1590

Met Asp  Thr Leu Pro Gly Leu  Val Met Ala Gln Asp  Gln Arg Ile
    1595                1600                1605

Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn Glu Asn  Ile His Ser
    1610                1615                1620

Ile His  Phe Ser Gly His Val  Phe Thr Val Arg Lys  Lys Glu Glu
    1625                1630                1635

Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro Gly Val  Phe Glu Thr
    1640                1645                1650

Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile Trp Arg  Val Glu Cys
    1655                1660                1665

Leu Ile  Gly Glu His Leu His  Ala Gly Met Ser Thr  Leu Phe Leu
    1670                1675                1680

Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu Gly Met  Ala Ser Gly
    1685                1690                1695

His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser Gly Gln  Tyr Gly Gln
    1700                1705                1710

Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr Ser Gly  Ser Ile Asn
    1715                1720                1725

Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp Ile Lys  Val Asp Leu
```

```
    1730                1735                1740

Leu Ala  Pro Met Ile Ile His  Gly Ile Lys Thr Gln  Gly Ala Arg
    1745                1750                1755

Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln Phe Ile  Ile Met Tyr
    1760                1765                1770

Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr Arg Gly  Asn Ser Thr
    1775                1780                1785

Gly Thr  Leu Met Val Phe Phe  Gly Asn Val Asp Ser  Ser Gly Ile
    1790                1795                1800

Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile Ala Arg  Tyr Ile Arg
    1805                1810                1815

Leu His  Pro Thr His Tyr Ser  Ile Arg Ser Thr Leu  Arg Met Glu
    1820                1825                1830

Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser Met Pro  Leu Gly Met
    1835                1840                1845

Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile Thr Ala  Ser Ser Tyr
    1850                1855                1860

Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro Ser Lys  Ala Arg Leu
    1865                1870                1875

His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg Pro Gln  Val Asn Asn
    1880                1885                1890

Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln Lys Thr  Met Lys Val
    1895                1900                1905

Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser Leu Leu  Thr Ser Met
    1910                1915                1920

Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser Gln Asp  Gly His Gln
    1925                1930                1935
```

```
Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val Lys Val  Phe Gln Gly
    1940                1945                1950

Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn Ser Leu  Asp Pro Pro
    1955                1960                1965

Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro Gln Ser  Trp Val His
    1970                1975                1980

Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly Cys Glu  Ala Gln Asp
    1985                1990                1995

Leu Tyr  Gly Pro Glu Gly Pro  Ser Gln Ser Pro Arg  Ser Phe Gln
    2000                2005                2010

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    2015                2020                2025

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    2030                2035                2040

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    2045                2050                2055

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2060                2065                2070

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro
    2075                2080                2085

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala
    2090                2095                2100

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    2105                2110                2115

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2120                2125                2130

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro
    2135                2140                2145
```

```
Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro
    2150                2155                2160

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2165                2170                2175

Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2180                2185                2190

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    2195                2200                2205

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr
    2210                2215                2220

Ser Gly  Ser Glu Thr Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    2225                2230                2235

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    2240                2245                2250

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Glu
    2255                2260                2265

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    2270                2275                2280

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    2285                2290                2295

Ser Ala  Pro
    2300
```

<210> 1556
<211> 2876
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1556

```
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1               5                  10                  15

Cys Phe Ser Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
            20                  25                  30

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
        35                  40                  45

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    50                  55                  60

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
65                  70                  75                  80

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
                85                  90                  95

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
            100                 105                 110

Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        115                 120                 125

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
    130                 135                 140

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
145                 150                 155                 160

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                165                 170                 175

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
            180                 185                 190

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        195                 200                 205

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    210                 215                 220
```

```
Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
225                 230                 235                 240

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                245                 250                 255

Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            260                 265                 270

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        275                 280                 285

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    290                 295                 300

Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
305                 310                 315                 320

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
                325                 330                 335

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            340                 345                 350

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        355                 360                 365

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    370                 375                 380

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
385                 390                 395                 400

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                405                 410                 415

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
            420                 425                 430

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
        435                 440                 445
```

```
Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    450                 455                 460

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
465                 470                 475                 480

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                485                 490                 495

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
            500                 505                 510

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        515                 520                 525

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    530                 535                 540

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
545                 550                 555                 560

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
                565                 570                 575

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            580                 585                 590

Ser Ala Pro Gln Ser Pro Arg Ser Phe Gln Gly Pro Ser Gly Pro Ala
        595                 600                 605

Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr Met
    610                 615                 620

Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg
625                 630                 635                 640

Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr
                645                 650                 655

Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro Arg
```

```
            660                 665                 670

Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr
        675                 680                 685

Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val Ser
    690                 695                 700

Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu
705                 710                 715                 720

Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe
                725                 730                 735

Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly
            740                 745                 750

Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His
        755                 760                 765

Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu
    770                 775                 780

Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His
785                 790                 795                 800

Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His
                805                 810                 815

Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala
            820                 825                 830

Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg Ser
        835                 840                 845

Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His Val
    850                 855                 860

Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly
865                 870                 875                 880
```

```
His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser
                885                 890                 895

Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln
            900                 905                 910

Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met Glu
        915                 920                 925

Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met
    930                 935                 940

Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser
945                 950                 955                 960

Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile
                965                 970                 975

Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr
            980                 985                 990

Ile Ala Ala Glu Glu Glu Asp Trp  Asp Tyr Ala Pro Leu  Val Leu Ala
        995                 1000                1005

Pro Asp  Asp Arg Ser Tyr Lys  Ser Gln Tyr Leu Asn  Asn Gly Pro
    1010                1015                1020

Gln Arg  Ile Gly Arg Lys Tyr  Lys Lys Val Arg Phe  Met Ala Tyr
    1025                1030                1035

Thr Asp  Glu Thr Phe Lys Thr  Arg Glu Ala Ile Gln  His Glu Ser
    1040                1045                1050

Gly Ile  Leu Gly Pro Leu Leu  Tyr Gly Glu Val Gly  Asp Thr Leu
    1055                1060                1065

Leu Ile  Ile Phe Lys Asn Gln  Ala Ser Arg Pro Tyr  Asn Ile Tyr
    1070                1075                1080

Pro His  Gly Ile Thr Asp Val  Arg Pro Leu Tyr Ser  Arg Arg Leu
    1085                1090                1095
```

```
Pro Lys  Gly Val Lys His Leu  Lys Asp Phe Pro Ile  Leu Pro Gly
    1100                1105                1110

Glu Ile  Phe Lys Tyr Lys Trp  Thr Val Thr Val Glu  Asp Gly Pro
    1115                1120                1125

Thr Lys  Ser Asp Pro Arg Cys  Leu Thr Arg Tyr Tyr  Ser Ser Phe
    1130                1135                1140

Val Asn  Met Glu Arg Asp Leu  Ala Ser Gly Leu Ile  Gly Pro Leu
    1145                1150                1155

Leu Ile  Cys Tyr Lys Glu Ser  Val Asp Gln Arg Gly  Asn Gln Ile
    1160                1165                1170

Met Ser  Asp Lys Arg Asn Val  Ile Leu Phe Ser Val  Phe Asp Glu
    1175                1180                1185

Asn Arg  Ser Trp Tyr Leu Thr  Glu Asn Ile Gln Arg  Phe Leu Pro
    1190                1195                1200

Asn Pro  Ala Gly Val Gln Leu  Glu Asp Pro Glu Phe  Gln Ala Ser
    1205                1210                1215

Asn Ile  Met His Ser Ile Asn  Gly Tyr Val Phe Asp  Ser Leu Gln
    1220                1225                1230

Leu Ser  Val Cys Leu His Glu  Val Ala Tyr Trp Tyr  Ile Leu Ser
    1235                1240                1245

Ile Gly  Ala Gln Thr Asp Phe  Leu Ser Val Phe Phe  Ser Gly Tyr
    1250                1255                1260

Thr Phe  Lys His Lys Met Val  Tyr Glu Asp Thr Leu  Thr Leu Phe
    1265                1270                1275

Pro Phe  Ser Gly Glu Thr Val  Phe Met Ser Met Glu  Asn Pro Gly
    1280                1285                1290

Leu Trp  Ile Leu Gly Cys His  Asn Ser Asp Phe Arg  Asn Arg Gly
    1295                1300                1305
```

```
Met Thr  Ala Leu Leu Lys Val  Ser Ser Cys Asp Lys  Asn Thr Gly
    1310                1315                1320

Asp Tyr  Tyr Glu Asp Ser Tyr  Glu Asp Ile Ser Ala  Tyr Leu Leu
    1325                1330                1335

Ser Lys  Asn Asn Ala Ile Glu  Pro Arg Ser Phe Ser  Gln Asn Gly
    1340                1345                1350

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu
    1355                1360                1365

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    1370                1375                1380

Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1385                1390                1395

Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1400                1405                1410

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    1415                1420                1425

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    1430                1435                1440

Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1445                1450                1455

Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1460                1465                1470

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    1475                1480                1485

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    1490                1495                1500

Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
```

1505 1510 1515

Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
1520 1525 1530

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
1535 1540 1545

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
1550 1555 1560

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
1565 1570 1575

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
1580 1585 1590

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1595 1600 1605

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
1610 1615 1620

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
1625 1630 1635

Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
1640 1645 1650

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
1655 1660 1665

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
1670 1675 1680

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
1685 1690 1695

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
1700 1705 1710

```
Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    1715                1720                1725

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    1730                1735                1740

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1745                1750                1755

Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1760                1765                1770

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    1775                1780                1785

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    1790                1795                1800

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1805                1810                1815

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1820                1825                1830

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    1835                1840                1845

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr
    1850                1855                1860

Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1865                1870                1875

Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1880                1885                1890

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu
    1895                1900                1905

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    1910                1915                1920
```

```
Glu Gly  Ser Ala Pro Gln Ser  Pro Arg Ser Phe Gln  Lys Lys Thr
    1925                1930                1935

Arg His  Tyr Phe Ile Ala Ala  Val Glu Arg Leu Trp  Asp Tyr Gly
    1940                1945                1950

Met Ser  Ser Ser Pro His Val  Leu Arg Asn Arg Ala  Gln Ser Gly
    1955                1960                1965

Ser Val  Pro Gln Phe Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp
    1970                1975                1980

Gly Ser  Phe Thr Gln Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His
    1985                1990                1995

Leu Gly  Leu Leu Gly Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn
    2000                2005                2010

Ile Met  Val Thr Phe Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe
    2015                2020                2025

Tyr Ser  Ser Leu Ile Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala
    2030                2035                2040

Glu Pro  Arg Lys Asn Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr
    2045                2050                2055

Phe Trp  Lys Val Gln His His  Met Ala Pro Thr Lys  Asp Glu Phe
    2060                2065                2070

Asp Cys  Lys Ala Trp Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys
    2075                2080                2085

Asp Val  His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
    2090                2095                2100

Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
    2105                2110                2115

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    2120                2125                2130
```

```
Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    2135                2140                2145

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    2150                2155                2160

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    2165                2170                2175

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    2180                2185                2190

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    2195                2200                2205

Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    2210                2215                2220

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    2225                2230                2235

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    2240                2245                2250

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    2255                2260                2265

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    2270                2275                2280

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    2285                2290                2295

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    2300                2305                2310

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    2315                2320                2325

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
```

```
    2330                2335                2340

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    2345                2350                2355

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    2360                2365                2370

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    2375                2380                2385

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    2390                2395                2400

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    2405                2410                2415

Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    2420                2425                2430

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    2435                2440                2445

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    2450                2455                2460

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    2465                2470                2475

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    2480                2485                2490

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    2495                2500                2505

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    2510                2515                2520

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    2525                2530                2535
```

```
Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    2540                2545                2550

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    2555                2560                2565

Cys Glu  Ala Gln Asp Leu Tyr  Gly Pro Glu Gly Pro  Ser Gln Ser
    2570                2575                2580

Pro Arg  Ser Phe Gln Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2585                2590                2595

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2600                2605                2610

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    2615                2620                2625

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    2630                2635                2640

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2645                2650                2655

Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2660                2665                2670

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    2675                2680                2685

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    2690                2695                2700

Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2705                2710                2715

Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2720                2725                2730

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    2735                2740                2745
```

```
Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr
    2750                 2755                 2760


Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2765                 2770                 2775


Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2780                 2785                 2790


Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Pro Ala
    2795                 2800                 2805


Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    2810                 2815                 2820


Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2825                 2830                 2835


Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2840                 2845                 2850


Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    2855                 2860                 2865


Glu Pro  Ser Glu Gly Ser Ala  Pro
    2870                 2875


<210> 1557
<211> 2576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1557
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1               5                  10                  15


Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
            20                  25                  30
```

```
Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
        35                  40                  45

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
    50                  55                  60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile
65                  70                  75                  80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
                85                  90                  95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
            100                 105                 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
        115                 120                 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
    130                 135                 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145                 150                 155                 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
                165                 170                 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
            180                 185                 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
        195                 200                 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
    210                 215                 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225                 230                 235                 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
                245                 250                 255
```

```
Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
            260                 265                 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
        275                 280                 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
    290                 295                 300

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

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
                325                 330                 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
            340                 345                 350

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

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
    370                 375                 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385                 390                 395                 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
                405                 410                 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
            420                 425                 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
        435                 440                 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
    450                 455                 460

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465                 470                 475                 480
```

```
Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
                485                 490                 495

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
            500                 505                 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
        515                 520                 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
    530                 535                 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545                 550                 555                 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
                565                 570                 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
            580                 585                 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
        595                 600                 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
    610                 615                 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625                 630                 635                 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
                645                 650                 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
            660                 665                 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
        675                 680                 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
```

```
    690                 695                 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705                 710                 715                 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
                725                 730                 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
            740                 745                 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Ser Pro Ala
        755                 760                 765

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
    770                 775                 780

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
785                 790                 795                 800

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr
                805                 810                 815

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
            820                 825                 830

Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        835                 840                 845

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
    850                 855                 860

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
865                 870                 875                 880

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                885                 890                 895

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            900                 905                 910
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
        915                 920                 925


Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    930                 935                 940


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
945                 950                 955                 960


Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
                965                 970                 975


Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            980                 985                 990


Gly Ser Glu Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Thr
        995                 1000                1005


Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    1010                1015                1020


Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1025                1030                1035


Gly Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1040                1045                1050


Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu
    1055                1060                1065


Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    1070                1075                1080


Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1085                1090                1095


Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1100                1105                1110


Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    1115                1120                1125
```

```
Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    1130                1135                1140

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1145                1150                1155

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1160                1165                1170

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr
    1175                1180                1185

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr
    1190                1195                1200

Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1205                1210                1215

Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1220                1225                1230

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu
    1235                1240                1245

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    1250                1255                1260

Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1265                1270                1275

Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1280                1285                1290

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    1295                1300                1305

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr
    1310                1315                1320

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1325                1330                1335
```

```
Ala Pro  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1340                1345                1350

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1355                1360                1365

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1370                1375                1380

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1385                1390                1395

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1400                1405                1410

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1415                1420                1425

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1430                1435                1440

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1445                1450                1455

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1460                1465                1470

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1475                1480                1485

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1490                1495                1500

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1505                1510                1515

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1520                1525                1530

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
```

```
    1535                1540                1545

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1550                1555                1560

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1565                1570                1575

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1580                1585                1590

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1595                1600                1605

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1610                1615                1620

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1625                1630                1635

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1640                1645                1650

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    1655                1660                1665

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    1670                1675                1680

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    1685                1690                1695

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    1700                1705                1710

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    1715                1720                1725

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    1730                1735                1740
```

```
Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    1745                1750                1755

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    1760                1765                1770

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    1775                1780                1785

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    1790                1795                1800

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    1805                1810                1815

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    1820                1825                1830

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    1835                1840                1845

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    1850                1855                1860

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    1865                1870                1875

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    1880                1885                1890

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    1895                1900                1905

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    1910                1915                1920

His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    1925                1930                1935

Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    1940                1945                1950
```

```
Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    1955                 1960                 1965

Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    1970                 1975                 1980

Gln Asp  Leu Tyr Gly Pro Glu  Gly Pro Ser Gln Ser  Pro Arg Ser
    1985                 1990                 1995

Phe Gln  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2000                 2005                 2010

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    2015                 2020                 2025

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro
    2030                 2035                 2040

Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2045                 2050                 2055

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2060                 2065                 2070

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    2075                 2080                 2085

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser Glu Pro  Ala Thr Ser
    2090                 2095                 2100

Gly Ser  Glu Thr Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2105                 2110                 2115

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2120                 2125                 2130

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    2135                 2140                 2145

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro
    2150                 2155                 2160
```

```
Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2165                2170                2175

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2180                2185                2190

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    2195                2200                2205

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr
    2210                2215                2220

Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    2225                2230                2235

Thr Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2240                2245                2250

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    2255                2260                2265

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr
    2270                2275                2280

Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2285                2290                2295

Glu Glu  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2300                2305                2310

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu
    2315                2320                2325

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    2330                2335                2340

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2345                2350                2355

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
```

2360 2365 2370

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
2375 2380 2385

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
2390 2395 2400

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
2405 2410 2415

Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
2420 2425 2430

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
2435 2440 2445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
2450 2455 2460

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
2465 2470 2475

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
2480 2485 2490

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
2495 2500 2505

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro
2510 2515 2520

Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
2525 2530 2535

Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
2540 2545 2550

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
2555 2560 2565

Glu Pro Ser Glu Gly Ser Ala Pro
    2570   2575

<210> 1558
<211> 2576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1558
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1   5   10   15

Cys Phe Ser Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
            20   25   30

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
        35   40   45

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    50   55   60

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
65   70   75   80

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
                85   90   95

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
            100   105   110

Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        115   120   125

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
    130   135   140

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
145   150   155   160

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly

```
                165                 170                 175

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
            180                 185                 190

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        195                 200                 205

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    210                 215                 220

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
225                 230                 235                 240

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                245                 250                 255

Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            260                 265                 270

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        275                 280                 285

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    290                 295                 300

Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
305                 310                 315                 320

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
                325                 330                 335

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            340                 345                 350

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        355                 360                 365

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    370                 375                 380
```

```
Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
385                 390                 395                 400

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                405                 410                 415

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
            420                 425                 430

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
        435                 440                 445

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    450                 455                 460

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
465                 470                 475                 480

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                485                 490                 495

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
            500                 505                 510

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        515                 520                 525

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    530                 535                 540

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
545                 550                 555                 560

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
                565                 570                 575

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            580                 585                 590

Ser Ala Pro Gln Ser Pro Arg Ser Phe Gln Gly Pro Glu Gly Pro Ser
        595                 600                 605
```

```
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
    610                 615                 620

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
625                 630                 635                 640

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
                645                 650                 655

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
            660                 665                 670

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
        675                 680                 685

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
    690                 695                 700

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
705                 710                 715                 720

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
                725                 730                 735

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
            740                 745                 750

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
        755                 760                 765

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
    770                 775                 780

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
785                 790                 795                 800

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
                805                 810                 815

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
            820                 825                 830
```

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
        835                 840                 845

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
    850                 855                 860

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
865                 870                 875                 880

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
                885                 890                 895

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
            900                 905                 910

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
        915                 920                 925

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
    930                 935                 940

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
945                 950                 955                 960

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
                965                 970                 975

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
            980                 985                 990

Tyr Ile Ala Ala Glu Glu Glu Asp  Trp Asp Tyr Ala Pro  Leu Val Leu
        995                 1000                1005

Ala Pro  Asp Asp Arg Ser Tyr  Lys Ser Gln Tyr Leu  Asn Asn Gly
    1010                1015                1020

Pro Gln  Arg Ile Gly Arg Lys  Tyr Lys Lys Val Arg  Phe Met Ala
    1025                1030                1035

Tyr Thr  Asp Glu Thr Phe Lys  Thr Arg Glu Ala Ile  Gln His Glu
```

```
    1040                1045                1050

Ser Gly  Ile Leu Gly Pro Leu  Leu Tyr Gly Glu Val  Gly Asp Thr
    1055                1060                1065

Leu Leu  Ile Ile Phe Lys Asn  Gln Ala Ser Arg Pro  Tyr Asn Ile
    1070                1075                1080

Tyr Pro  His Gly Ile Thr Asp  Val Arg Pro Leu Tyr  Ser Arg Arg
    1085                1090                1095

Leu Pro  Lys Gly Val Lys His  Leu Lys Asp Phe Pro  Ile Leu Pro
    1100                1105                1110

Gly Glu  Ile Phe Lys Tyr Lys  Trp Thr Val Thr Val  Glu Asp Gly
    1115                1120                1125

Pro Thr  Lys Ser Asp Pro Arg  Cys Leu Thr Arg Tyr  Tyr Ser Ser
    1130                1135                1140

Phe Val  Asn Met Glu Arg Asp  Leu Ala Ser Gly Leu  Ile Gly Pro
    1145                1150                1155

Leu Leu  Ile Cys Tyr Lys Glu  Ser Val Asp Gln Arg  Gly Asn Gln
    1160                1165                1170

Ile Met  Ser Asp Lys Arg Asn  Val Ile Leu Phe Ser  Val Phe Asp
    1175                1180                1185

Glu Asn  Arg Ser Trp Tyr Leu  Thr Glu Asn Ile Gln  Arg Phe Leu
    1190                1195                1200

Pro Asn  Pro Ala Gly Val Gln  Leu Glu Asp Pro Glu  Phe Gln Ala
    1205                1210                1215

Ser Asn  Ile Met His Ser Ile  Asn Gly Tyr Val Phe  Asp Ser Leu
    1220                1225                1230

Gln Leu  Ser Val Cys Leu His  Glu Val Ala Tyr Trp  Tyr Ile Leu
    1235                1240                1245
```

```
Ser Ile  Gly Ala Gln Thr Asp  Phe Leu Ser Val Phe  Phe Ser Gly
    1250                1255                1260

Tyr Thr  Phe Lys His Lys Met  Val Tyr Glu Asp Thr  Leu Thr Leu
    1265                1270                1275

Phe Pro  Phe Ser Gly Glu Thr  Val Phe Met Ser Met  Glu Asn Pro
    1280                1285                1290

Gly Leu  Trp Ile Leu Gly Cys  His Asn Ser Asp Phe  Arg Asn Arg
    1295                1300                1305

Gly Met  Thr Ala Leu Leu Lys  Val Ser Ser Cys Asp  Lys Asn Thr
    1310                1315                1320

Gly Asp  Tyr Tyr Glu Asp Ser  Tyr Glu Asp Ile Ser  Ala Tyr Leu
    1325                1330                1335

Leu Ser  Lys Asn Asn Ala Ile  Glu Pro Arg Ser Phe  Ser Gln Asn
    1340                1345                1350

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1355                1360                1365

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1370                1375                1380

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1385                1390                1395

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1400                1405                1410

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1415                1420                1425

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1430                1435                1440

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1445                1450                1455
```

```
Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1460                1465                1470

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1475                1480                1485

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1490                1495                1500

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1505                1510                1515

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1520                1525                1530

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1535                1540                1545

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1550                1555                1560

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1565                1570                1575

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1580                1585                1590

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1595                1600                1605

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1610                1615                1620

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1625                1630                1635

Ser Gly  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1640                1645                1650

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1655                1660                1665
```

```
Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1670                 1675                 1680

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1685                 1690                 1695

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1700                 1705                 1710

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1715                 1720                 1725

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1730                 1735                 1740

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1745                 1750                 1755

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1760                 1765                 1770

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1775                 1780                 1785

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1790                 1795                 1800

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1805                 1810                 1815

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1820                 1825                 1830

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1835                 1840                 1845

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1850                 1855                 1860

Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
```

```
    1865                1870                1875

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1880                1885                1890

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1895                1900                1905

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1910                1915                1920

Ser Glu  Gly Ser Ala Pro Gln  Ser Pro Arg Ser Phe  Gln Lys Lys
    1925                1930                1935

Thr Arg  His Tyr Phe Ile Ala  Ala Val Glu Arg Leu  Trp Asp Tyr
    1940                1945                1950

Gly Met  Ser Ser Ser Pro His  Val Leu Arg Asn Arg  Ala Gln Ser
    1955                1960                1965

Gly Ser  Val Pro Gln Phe Lys  Lys Val Val Phe Gln  Glu Phe Thr
    1970                1975                1980

Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg Gly Glu  Leu Asn Glu
    1985                1990                1995

His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg Ala Glu  Val Glu Asp
    2000                2005                2010

Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala Ser Arg  Pro Tyr Ser
    2015                2020                2025

Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu Asp Gln  Arg Gln Gly
    2030                2035                2040

Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro Asn Glu  Thr Lys Thr
    2045                2050                2055

Tyr Phe  Trp Lys Val Gln His  His Met Ala Pro Thr  Lys Asp Glu
    2060                2065                2070
```

```
Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser Asp Val  Asp Leu Glu
    2075                2080                2085

Lys Asp  Val His Ser Gly Leu  Ile Gly Pro Leu Leu  Val Cys His
    2090                2095                2100

Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg Gln Val  Thr Val Gln
    2105                2110                2115

Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp Glu Thr  Lys Ser Trp
    2120                2125                2130

Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys Arg Ala  Pro Cys Asn
    2135                2140                2145

Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu Asn Tyr  Arg Phe His
    2150                2155                2160

Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu Pro Gly  Leu Val Met
    2165                2170                2175

Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu Leu Ser  Met Gly Ser
    2180                2185                2190

Asn Glu  Asn Ile His Ser Ile  His Phe Ser Gly His  Val Phe Thr
    2195                2200                2205

Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala Leu Tyr  Asn Leu Tyr
    2210                2215                2220

Pro Gly  Val Phe Glu Thr Val  Glu Met Leu Pro Ser  Lys Ala Gly
    2225                2230                2235

Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu His Leu  His Ala Gly
    2240                2245                2250

Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn Lys Cys  Gln Thr Pro
    2255                2260                2265

Leu Gly  Met Ala Ser Gly His  Ile Arg Asp Phe Gln  Ile Thr Ala
    2270                2275                2280
```

```
Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys Leu Ala  Arg Leu His
    2285                 2290                 2295

Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr Lys Glu  Pro Phe Ser
    2300                 2305                 2310

Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met Ile Ile  His Gly Ile
    2315                 2320                 2325

Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser Ser Leu  Tyr Ile Ser
    2330                 2335                 2340

Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly Lys Lys  Trp Gln Thr
    2345                 2350                 2355

Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met Val Phe  Phe Gly Asn
    2360                 2365                 2370

Val Asp  Ser Ser Gly Ile Lys  His Asn Ile Phe Asn  Pro Pro Ile
    2375                 2380                 2385

Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr His Tyr  Ser Ile Arg
    2390                 2395                 2400

Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys Asp Leu  Asn Ser Cys
    2405                 2410                 2415

Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala Ile Ser  Asp Ala Gln
    2420                 2425                 2430

Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met Phe Ala  Thr Trp Ser
    2435                 2440                 2445

Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly Arg Ser  Asn Ala Trp
    2450                 2455                 2460

Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp Leu Gln  Val Asp Phe
    2465                 2470                 2475

Gln Lys  Thr Met Lys Val Thr  Gly Val Thr Thr Gln  Gly Val Lys
    2480                 2485                 2490
```

Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser
    2495   2500   2505

Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys
    2510   2515   2520

Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val
    2525   2530   2535

Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His
    2540   2545   2550

Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu
    2555   2560   2565

Gly Cys Glu Ala Gln Asp Leu Tyr
    2570   2575

<210> 1559
<211> 2871
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1559
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1   5   10   15

Cys Phe Ser Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
            20   25   30

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
        35   40   45

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    50   55   60

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
65   70   75   80

```
Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
                85                  90                  95

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
            100                 105                 110

Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
        115                 120                 125

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
    130                 135                 140

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
145                 150                 155                 160

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                165                 170                 175

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu
            180                 185                 190

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        195                 200                 205

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    210                 215                 220

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
225                 230                 235                 240

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                245                 250                 255

Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            260                 265                 270

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        275                 280                 285

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    290                 295                 300
```

```
Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
305                 310                 315                 320

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
                325                 330                 335

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            340                 345                 350

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        355                 360                 365

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    370                 375                 380

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
385                 390                 395                 400

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                405                 410                 415

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
            420                 425                 430

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
        435                 440                 445

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    450                 455                 460

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
465                 470                 475                 480

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                485                 490                 495

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
            500                 505                 510

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
```

```
        515                 520                 525

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    530                 535                 540

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
545                 550                 555                 560

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
                565                 570                 575

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            580                 585                 590

Ser Ala Pro Ile Glu Pro Arg Ser Pro Ser Gly Ser Pro Gly Ala Thr
        595                 600                 605

Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln
    610                 615                 620

Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val
625                 630                 635                 640

Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu
                645                 650                 655

Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro Arg Pro
            660                 665                 670

Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp
        675                 680                 685

Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu
    690                 695                 700

His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr
705                 710                 715                 720

Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro
                725                 730                 735
```

```
Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro
            740                 745                 750

Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val
        755                 760                 765

Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val
    770                 775                 780

Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys
785                 790                 795                 800

Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser
                805                 810                 815

Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg
            820                 825                 830

Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu
        835                 840                 845

Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile
    850                 855                 860

Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His
865                 870                 875                 880

Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro
                885                 890                 895

Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe
            900                 905                 910

Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met Glu Ala
        915                 920                 925

Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys
    930                 935                 940

Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu
945                 950                 955                 960
```

```
Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln
               965                 970                 975

Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile
            980                 985                 990

Ala Ala Glu Glu Glu Asp Trp Asp  Tyr Ala Pro Leu Val  Leu Ala Pro
        995                 1000                1005

Asp Asp  Arg Ser Tyr Lys Ser  Gln Tyr Leu Asn Asn  Gly Pro Gln
    1010                1015                1020

Arg Ile  Gly Arg Lys Tyr Lys  Lys Val Arg Phe Met  Ala Tyr Thr
    1025                1030                1035

Asp Glu  Thr Phe Lys Thr Arg  Glu Ala Ile Gln His  Glu Ser Gly
    1040                1045                1050

Ile Leu  Gly Pro Leu Leu Tyr  Gly Glu Val Gly Asp  Thr Leu Leu
    1055                1060                1065

Ile Ile  Phe Lys Asn Gln Ala  Ser Arg Pro Tyr Asn  Ile Tyr Pro
    1070                1075                1080

His Gly  Ile Thr Asp Val Arg  Pro Leu Tyr Ser Arg  Arg Leu Pro
    1085                1090                1095

Lys Gly  Val Lys His Leu Lys  Asp Phe Pro Ile Leu  Pro Gly Glu
    1100                1105                1110

Ile Phe  Lys Tyr Lys Trp Thr  Val Thr Val Glu Asp  Gly Pro Thr
    1115                1120                1125

Lys Ser  Asp Pro Arg Cys Leu  Thr Arg Tyr Tyr Ser  Ser Phe Val
    1130                1135                1140

Asn Met  Glu Arg Asp Leu Ala  Ser Gly Leu Ile Gly  Pro Leu Leu
    1145                1150                1155

Ile Cys  Tyr Lys Glu Ser Val  Asp Gln Arg Gly Asn  Gln Ile Met
    1160                1165                1170
```

```
Ser Asp  Lys Arg Asn Val Ile  Leu Phe Ser Val Phe  Asp Glu Asn
    1175                1180                1185

Arg Ser  Trp Tyr Leu Thr Glu  Asn Ile Gln Arg Phe  Leu Pro Asn
    1190                1195                1200

Pro Ala  Gly Val Gln Leu Glu  Asp Pro Glu Phe Gln  Ala Ser Asn
    1205                1210                1215

Ile Met  His Ser Ile Asn Gly  Tyr Val Phe Asp Ser  Leu Gln Leu
    1220                1225                1230

Ser Val  Cys Leu His Glu Val  Ala Tyr Trp Tyr Ile  Leu Ser Ile
    1235                1240                1245

Gly Ala  Gln Thr Asp Phe Leu  Ser Val Phe Phe Ser  Gly Tyr Thr
    1250                1255                1260

Phe Lys  His Lys Met Val Tyr  Glu Asp Thr Leu Thr  Leu Phe Pro
    1265                1270                1275

Phe Ser  Gly Glu Thr Val Phe  Met Ser Met Glu Asn  Pro Gly Leu
    1280                1285                1290

Trp Ile  Leu Gly Cys His Asn  Ser Asp Phe Arg Asn  Arg Gly Met
    1295                1300                1305

Thr Ala  Leu Leu Lys Val Ser  Ser Cys Asp Lys Asn  Thr Gly Asp
    1310                1315                1320

Tyr Tyr  Glu Asp Ser Tyr Glu  Asp Ile Ser Ala Tyr  Leu Leu Ser
    1325                1330                1335

Lys Asn  Asn Ala Ile Glu Pro  Arg Ser Phe Ser Gly  Thr Ser Glu
    1340                1345                1350

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    1355                1360                1365

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
```

1370 1375 1380

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
1385 1390 1395

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
1400 1405 1410

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro
1415 1420 1425

Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
1430 1435 1440

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
1445 1450 1455

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala
1460 1465 1470

Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro
1475 1480 1485

Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
1490 1495 1500

Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
1505 1510 1515

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu
1520 1525 1530

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
1535 1540 1545

Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
1550 1555 1560

Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
1565 1570 1575

```
Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    1580                1585                1590

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Glu Pro  Ala Thr Ser
    1595                1600                1605

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1610                1615                1620

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gln
    1625                1630                1635

Ser Pro  Arg Ser Phe Gln Lys  Lys Thr Arg His Tyr  Phe Ile Ala
    1640                1645                1650

Ala Val  Glu Arg Leu Trp Asp  Tyr Gly Met Ser Ser  Ser Pro His
    1655                1660                1665

Val Leu  Arg Asn Arg Ala Gln  Ser Gly Ser Val Pro  Gln Phe Lys
    1670                1675                1680

Lys Val  Val Phe Gln Glu Phe  Thr Asp Gly Ser Phe  Thr Gln Pro
    1685                1690                1695

Leu Tyr  Arg Gly Glu Leu Asn  Glu His Leu Gly Leu  Leu Gly Pro
    1700                1705                1710

Tyr Ile  Arg Ala Glu Val Glu  Asp Asn Ile Met Val  Thr Phe Arg
    1715                1720                1725

Asn Gln  Ala Ser Arg Pro Tyr  Ser Phe Tyr Ser Ser  Leu Ile Ser
    1730                1735                1740

Tyr Glu  Glu Asp Gln Arg Gln  Gly Ala Glu Pro Arg  Lys Asn Phe
    1745                1750                1755

Val Lys  Pro Asn Glu Thr Lys  Thr Tyr Phe Trp Lys  Val Gln His
    1760                1765                1770

His Met  Ala Pro Thr Lys Asp  Glu Phe Asp Cys Lys  Ala Trp Ala
    1775                1780                1785
```

```
Tyr Phe  Ser Asp Val Asp Leu  Glu Lys Asp Val His  Ser Gly Leu
    1790                1795                1800

Ile Gly  Pro Leu Leu Val Cys  His Thr Asn Thr Leu  Asn Pro Ala
    1805                1810                1815

His Gly  Arg Gln Val Thr Val  Gln Glu Phe Ala Leu  Phe Phe Thr
    1820                1825                1830

Ile Phe  Asp Glu Thr Lys Ser  Trp Tyr Phe Thr Glu  Asn Met Glu
    1835                1840                1845

Arg Asn  Cys Arg Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    1850                1855                1860

Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    1865                1870                1875

Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1880                1885                1890

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1895                1900                1905

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    1910                1915                1920

Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
    1925                1930                1935

Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1940                1945                1950

Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
    1955                1960                1965

Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1970                1975                1980

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
    1985                1990                1995
```

```
Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
    2000                2005                2010

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    2015                2020                2025

Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
    2030                2035                2040

Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    2045                2050                2055

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    2060                2065                2070

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    2075                2080                2085

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    2090                2095                2100

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    2105                2110                2115

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    2120                2125                2130

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    2135                2140                2145

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
    2150                2155                2160

Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
    2165                2170                2175

Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
    2180                2185                2190

Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr
```

```
    2195                2200                2205

Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp
    2210                2215                2220

Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn
    2225                2230                2235

Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser Leu Asp  Pro Pro Leu
    2240                2245                2250

Leu Thr  Arg Tyr Leu Arg Ile  His Pro Gln Ser Trp  Val His Gln
    2255                2260                2265

Ile Ala  Leu Arg Met Glu Val  Leu Gly Cys Glu Ala  Gln Asp Leu
    2270                2275                2280

Tyr Gly  Ser Pro Gly Ile Glu  Pro Arg Ser Pro Ser  Gly Ser Pro
    2285                2290                2295

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala
    2300                2305                2310

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    2315                2320                2325

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2330                2335                2340

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    2345                2350                2355

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    2360                2365                2370

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    2375                2380                2385

Glu Thr  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    2390                2395                2400
```

```
Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    2405                 2410                 2415

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    2420                 2425                 2430

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    2435                 2440                 2445

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2450                 2455                 2460

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    2465                 2470                 2475

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    2480                 2485                 2490

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    2495                 2500                 2505

Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2510                 2515                 2520

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    2525                 2530                 2535

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    2540                 2545                 2550

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2555                 2560                 2565

Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2570                 2575                 2580

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    2585                 2590                 2595

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    2600                 2605                 2610
```

```
Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2615                 2620                 2625

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    2630                 2635                 2640

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    2645                 2650                 2655

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    2660                 2665                 2670

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    2675                 2680                 2685

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    2690                 2695                 2700

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    2705                 2710                 2715

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    2720                 2725                 2730

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    2735                 2740                 2745

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2750                 2755                 2760

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    2765                 2770                 2775

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    2780                 2785                 2790

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2795                 2800                 2805

Ser Gly  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2810                 2815                 2820
```

```
Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro
    2825                 2830                 2835


Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala
    2840                 2845                 2850


Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    2855                 2860                 2865


Ser Ala  Pro
    2870
```

<210> 1560
<211> 2583
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1560

```
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1               5                   10                  15


Cys Phe Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            20                  25                  30


Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
        35                  40                  45


Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    50                  55                  60


Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
65                  70                  75                  80


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
                85                  90                  95


Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            100                 105                 110
```

```
Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
        115                 120                 125

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
    130                 135                 140

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
145                 150                 155                 160

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                165                 170                 175

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
            180                 185                 190

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
        195                 200                 205

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    210                 215                 220

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
225                 230                 235                 240

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                245                 250                 255

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            260                 265                 270

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
        275                 280                 285

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    290                 295                 300

Thr Gly Ser Ile Glu Pro Arg Ser Pro Ser Gly Ser Pro Gly Ala Thr
305                 310                 315                 320

Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln
                325                 330                 335
```

```
Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val
            340                 345                 350

Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu
        355                 360                 365

Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro Arg Pro
    370                 375                 380

Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp
385                 390                 395                 400

Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu
                405                 410                 415

His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr
            420                 425                 430

Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro
        435                 440                 445

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

Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val
465                 470                 475                 480

Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val
                485                 490                 495

Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys
            500                 505                 510

Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser
        515                 520                 525

Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg
    530                 535                 540

Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu
```

```
545                 550                 555                 560

Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile
                565                 570                 575

Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His
            580                 585                 590

Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro
        595                 600                 605

Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe
    610                 615                 620

Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met Glu Ala
625                 630                 635                 640

Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys
                645                 650                 655

Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu
            660                 665                 670

Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln
        675                 680                 685

Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile
    690                 695                 700

Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro
705                 710                 715                 720

Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg
                725                 730                 735

Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu
            740                 745                 750

Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly
        755                 760                 765
```

```
Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys
    770                 775                 780

Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp
785                 790                 795                 800

Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu
                805                 810                 815

Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr
            820                 825                 830

Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr
        835                 840                 845

Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly
    850                 855                 860

Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg
865                 870                 875                 880

Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val
                885                 890                 895

Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe
            900                 905                 910

Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala
        915                 920                 925

Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln
    930                 935                 940

Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile
945                 950                 955                 960

Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe
                965                 970                 975

Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser
            980                 985                 990
```

```
Gly Glu Thr Val Phe Met Ser Met  Glu Asn Pro Gly Leu  Trp Ile Leu
        995                 1000                1005


Gly Cys  His Asn Ser Asp Phe  Arg Asn Arg Gly Met  Thr Ala Leu
    1010                1015                1020


Leu Lys  Val Ser Ser Cys Asp  Lys Asn Thr Gly Asp  Tyr Tyr Glu
    1025                1030                1035


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


Ala Ile  Glu Pro Arg Ser Phe  Ser Pro Gly Thr Pro  Gly Ser Gly
    1055                1060                1065


Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1070                1075                1080


Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    1085                1090                1095


Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser
    1100                1105                1110


Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1115                1120                1125


Gly Ala  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1130                1135                1140


Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1145                1150                1155


Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro
    1160                1165                1170


Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1175                1180                1185


Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1190                1195                1200
```

```
Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1205                 1210                 1215

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro
    1220                 1225                 1230

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ala Ser  Pro Gly Thr
    1235                 1240                 1245

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1250                 1255                 1260

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1265                 1270                 1275

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1280                 1285                 1290

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1295                 1300                 1305

Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1310                 1315                 1320

Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1325                 1330                 1335

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1340                 1345                 1350

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1355                 1360                 1365

Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1370                 1375                 1380

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1385                 1390                 1395

Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser
```

1400 1405 1410

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
1415 1420 1425

Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
1430 1435 1440

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
1445 1450 1455

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
1460 1465 1470

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
1475 1480 1485

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
1490 1495 1500

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
1505 1510 1515

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
1520 1525 1530

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
1535 1540 1545

Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
1550 1555 1560

Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
1565 1570 1575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
1580 1585 1590

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
1595 1600 1605

```
Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
    1610                 1615                 1620

Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Gln
    1625                 1630                 1635

Ser Pro  Arg Ser Phe Gln Lys  Lys Thr Arg His Tyr  Phe Ile Ala
    1640                 1645                 1650

Ala Val  Glu Arg Leu Trp Asp  Tyr Gly Met Ser Ser  Ser Pro His
    1655                 1660                 1665

Val Leu  Arg Asn Arg Ala Gln  Ser Gly Ser Val Pro  Gln Phe Lys
    1670                 1675                 1680

Lys Val  Val Phe Gln Glu Phe  Thr Asp Gly Ser Phe  Thr Gln Pro
    1685                 1690                 1695

Leu Tyr  Arg Gly Glu Leu Asn  Glu His Leu Gly Leu  Leu Gly Pro
    1700                 1705                 1710

Tyr Ile  Arg Ala Glu Val Glu  Asp Asn Ile Met Val  Thr Phe Arg
    1715                 1720                 1725

Asn Gln  Ala Ser Arg Pro Tyr  Ser Phe Tyr Ser Ser  Leu Ile Ser
    1730                 1735                 1740

Tyr Glu  Glu Asp Gln Arg Gln  Gly Ala Glu Pro Arg  Lys Asn Phe
    1745                 1750                 1755

Val Lys  Pro Asn Glu Thr Lys  Thr Tyr Phe Trp Lys  Val Gln His
    1760                 1765                 1770

His Met  Ala Pro Thr Lys Asp  Glu Phe Asp Cys Lys  Ala Trp Ala
    1775                 1780                 1785

Tyr Phe  Ser Asp Val Asp Leu  Glu Lys Asp Val His  Ser Gly Leu
    1790                 1795                 1800

Ile Gly  Pro Leu Leu Val Cys  His Thr Asn Thr Leu  Asn Pro Ala
    1805                 1810                 1815
```

```
His Gly  Arg Gln Val Thr Val  Gln Glu Phe Ala Leu  Phe Phe Thr
    1820                1825                1830

Ile Phe  Asp Glu Thr Lys Ser  Trp Tyr Phe Thr Glu  Asn Met Glu
    1835                1840                1845

Arg Asn  Cys Arg Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    1850                1855                1860

Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    1865                1870                1875

Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1880                1885                1890

Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1895                1900                1905

His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    1910                1915                1920

Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
    1925                1930                1935

Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1940                1945                1950

Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
    1955                1960                1965

Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1970                1975                1980

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
    1985                1990                1995

Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
    2000                2005                2010

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    2015                2020                2025
```

```
Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
    2030                2035                2040

Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    2045                2050                2055

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    2060                2065                2070

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    2075                2080                2085

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    2090                2095                2100

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    2105                2110                2115

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    2120                2125                2130

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    2135                2140                2145

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
    2150                2155                2160

Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
    2165                2170                2175

Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
    2180                2185                2190

Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr
    2195                2200                2205

Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp
    2210                2215                2220

Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn
```

```
    2225                2230                2235

Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser Leu Asp  Pro Pro Leu
    2240                2245                2250

Leu Thr  Arg Tyr Leu Arg Ile  His Pro Gln Ser Trp  Val His Gln
    2255                2260                2265

Ile Ala  Leu Arg Met Glu Val  Leu Gly Cys Glu Ala  Gln Asp Leu
    2270                2275                2280

Tyr Gly  Ser Pro Gly Gln Ser  Pro Arg Ser Phe Gln  Pro Gly Ala
    2285                2290                2295

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    2300                2305                2310

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    2315                2320                2325

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    2330                2335                2340

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    2345                2350                2355

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    2360                2365                2370

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    2375                2380                2385

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    2390                2395                2400

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser
    2405                2410                2415

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    2420                2425                2430
```

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    2435   2440   2445

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
    2450   2455   2460

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser
    2465   2470   2475

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
    2480   2485   2490

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
    2495   2500   2505

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
    2510   2515   2520

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala
    2525   2530   2535

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser
    2540   2545   2550

Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala
    2555   2560   2565

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
    2570   2575   2580

<210> 1561
<211> 2873
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1561
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1   5   10   15

Cys Phe Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro

```
            20                  25                  30

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        35                  40                  45

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    50                  55                  60

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
65                  70                  75                  80

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                85                  90                  95

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            100                 105                 110

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        115                 120                 125

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    130                 135                 140

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
145                 150                 155                 160

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                165                 170                 175

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            180                 185                 190

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        195                 200                 205

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    210                 215                 220

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
225                 230                 235                 240
```

```
Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                245                 250                 255

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            260                 265                 270

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        275                 280                 285

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    290                 295                 300

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
305                 310                 315                 320

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                325                 330                 335

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            340                 345                 350

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        355                 360                 365

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    370                 375                 380

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
385                 390                 395                 400

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                405                 410                 415

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            420                 425                 430

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        435                 440                 445

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    450                 455                 460
```

```
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
465                 470                 475                 480

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                485                 490                 495

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            500                 505                 510

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        515                 520                 525

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    530                 535                 540

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
545                 550                 555                 560

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
                565                 570                 575

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            580                 585                 590

Thr Gly Ser Gln Ser Pro Arg Ser Phe Gln Gly Ser Pro Gly Ala Thr
        595                 600                 605

Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln
    610                 615                 620

Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val
625                 630                 635                 640

Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu
                645                 650                 655

Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro Arg Pro
            660                 665                 670

Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp
        675                 680                 685
```

```
Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu
    690                 695                 700

His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr
705                 710                 715                 720

Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro
                725                 730                 735

Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro
            740                 745                 750

Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val
        755                 760                 765

Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val
    770                 775                 780

Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys
785                 790                 795                 800

Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser
                805                 810                 815

Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg
            820                 825                 830

Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu
        835                 840                 845

Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile
    850                 855                 860

Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His
865                 870                 875                 880

Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro
                885                 890                 895

Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe
```

```
            900                 905                 910

Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met Glu Ala
        915                 920                 925

Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys
    930                 935                 940

Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu
945                 950                 955                 960

Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln
                965                 970                 975

Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile
            980                 985                 990

Ala Ala Glu Glu Glu Asp Trp Asp  Tyr Ala Pro Leu Val  Leu Ala Pro
        995                 1000                1005

Asp Asp  Arg Ser Tyr Lys Ser  Gln Tyr Leu Asn Asn  Gly Pro Gln
    1010                1015                1020

Arg Ile  Gly Arg Lys Tyr Lys  Lys Val Arg Phe Met  Ala Tyr Thr
    1025                1030                1035

Asp Glu  Thr Phe Lys Thr Arg  Glu Ala Ile Gln His  Glu Ser Gly
    1040                1045                1050

Ile Leu  Gly Pro Leu Leu Tyr  Gly Glu Val Gly Asp  Thr Leu Leu
    1055                1060                1065

Ile Ile  Phe Lys Asn Gln Ala  Ser Arg Pro Tyr Asn  Ile Tyr Pro
    1070                1075                1080

His Gly  Ile Thr Asp Val Arg  Pro Leu Tyr Ser Arg  Arg Leu Pro
    1085                1090                1095

Lys Gly  Val Lys His Leu Lys  Asp Phe Pro Ile Leu  Pro Gly Glu
    1100                1105                1110
```

```
Ile Phe  Lys Tyr Lys Trp Thr  Val Thr Val Glu Asp  Gly Pro Thr
    1115                1120                1125

Lys Ser  Asp Pro Arg Cys Leu  Thr Arg Tyr Tyr Ser  Ser Phe Val
    1130                1135                1140

Asn Met  Glu Arg Asp Leu Ala  Ser Gly Leu Ile Gly  Pro Leu Leu
    1145                1150                1155

Ile Cys  Tyr Lys Glu Ser Val  Asp Gln Arg Gly Asn  Gln Ile Met
    1160                1165                1170

Ser Asp  Lys Arg Asn Val Ile  Leu Phe Ser Val Phe  Asp Glu Asn
    1175                1180                1185

Arg Ser  Trp Tyr Leu Thr Glu  Asn Ile Gln Arg Phe  Leu Pro Asn
    1190                1195                1200

Pro Ala  Gly Val Gln Leu Glu  Asp Pro Glu Phe Gln  Ala Ser Asn
    1205                1210                1215

Ile Met  His Ser Ile Asn Gly  Tyr Val Phe Asp Ser  Leu Gln Leu
    1220                1225                1230

Ser Val  Cys Leu His Glu Val  Ala Tyr Trp Tyr Ile  Leu Ser Ile
    1235                1240                1245

Gly Ala  Gln Thr Asp Phe Leu  Ser Val Phe Phe Ser  Gly Tyr Thr
    1250                1255                1260

Phe Lys  His Lys Met Val Tyr  Glu Asp Thr Leu Thr  Leu Phe Pro
    1265                1270                1275

Phe Ser  Gly Glu Thr Val Phe  Met Ser Met Glu Asn  Pro Gly Leu
    1280                1285                1290

Trp Ile  Leu Gly Cys His Asn  Ser Asp Phe Arg Asn  Arg Gly Met
    1295                1300                1305

Thr Ala  Leu Leu Lys Val Ser  Ser Cys Asp Lys Asn  Thr Gly Asp
    1310                1315                1320
```

```
Tyr Tyr  Glu Asp Ser Tyr Glu  Asp Ile Ser Ala Tyr  Leu Leu Ser
    1325                1330                1335

Lys Asn  Asn Ala Ile Glu Pro  Arg Ser Phe Ser Gln  Asn Pro Gly
    1340                1345                1350

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1355                1360                1365

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1370                1375                1380

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1385                1390                1395

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1400                1405                1410

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1415                1420                1425

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1430                1435                1440

Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1445                1450                1455

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1460                1465                1470

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1475                1480                1485

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    1490                1495                1500

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1505                1510                1515

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1520                1525                1530
```

```
Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1535                1540                1545

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1550                1555                1560

Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1565                1570                1575

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1580                1585                1590

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Pro
    1595                1600                1605

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr
    1610                1615                1620

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1625                1630                1635

Ser Gln  Ser Pro Arg Ser Phe  Gln Lys Lys Thr Arg  His Tyr Phe
    1640                1645                1650

Ile Ala  Ala Val Glu Arg Leu  Trp Asp Tyr Gly Met  Ser Ser Ser
    1655                1660                1665

Pro His  Val Leu Arg Asn Arg  Ala Gln Ser Gly Ser  Val Pro Gln
    1670                1675                1680

Phe Lys  Lys Val Val Phe Gln  Glu Phe Thr Asp Gly  Ser Phe Thr
    1685                1690                1695

Gln Pro  Leu Tyr Arg Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu
    1700                1705                1710

Gly Pro  Tyr Ile Arg Ala Glu  Val Glu Asp Asn Ile  Met Val Thr
    1715                1720                1725

Phe Arg  Asn Gln Ala Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu
```

```
    1730                1735                1740

Ile Ser  Tyr Glu Glu Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys
    1745                1750                1755

Asn Phe  Val Lys Pro Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val
    1760                1765                1770

Gln His  His Met Ala Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala
    1775                1780                1785

Trp Ala  Tyr Phe Ser Asp Val  Asp Leu Glu Lys Asp  Val His Ser
    1790                1795                1800

Gly Leu  Ile Gly Pro Leu Leu  Val Cys His Thr Asn  Thr Leu Asn
    1805                1810                1815

Pro Ala  His Gly Arg Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe
    1820                1825                1830

Phe Thr  Ile Phe Asp Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn
    1835                1840                1845

Met Glu  Arg Asn Cys Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp
    1850                1855                1860

Pro Thr  Phe Lys Glu Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr
    1865                1870                1875

Ile Met  Asp Thr Leu Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg
    1880                1885                1890

Ile Arg  Trp Tyr Leu Leu Ser  Met Gly Ser Asn Glu  Asn Ile His
    1895                1900                1905

Ser Ile  His Phe Ser Gly His  Val Phe Thr Val Arg  Lys Lys Glu
    1910                1915                1920

Glu Tyr  Lys Met Ala Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu
    1925                1930                1935
```

```
Thr Val  Glu Met Leu Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu
    1940                1945                1950

Cys Leu  Ile Gly Glu His Leu  His Ala Gly Met Ser  Thr Leu Phe
    1955                1960                1965

Leu Val  Tyr Ser Asn Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser
    1970                1975                1980

Gly His  Ile Arg Asp Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly
    1985                1990                1995

Gln Trp  Ala Pro Lys Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile
    2000                2005                2010

Asn Ala  Trp Ser Thr Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp
    2015                2020                2025

Leu Leu  Ala Pro Met Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala
    2030                2035                2040

Arg Gln  Lys Phe Ser Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met
    2045                2050                2055

Tyr Ser  Leu Asp Gly Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser
    2060                2065                2070

Thr Gly  Thr Leu Met Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly
    2075                2080                2085

Ile Lys  His Asn Ile Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile
    2090                2095                2100

Arg Leu  His Pro Thr His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met
    2105                2110                2115

Glu Leu  Met Gly Cys Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly
    2120                2125                2130

Met Glu  Ser Lys Ala Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser
    2135                2140                2145
```

```
Tyr Phe  Thr Asn Met Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg
    2150                2155                2160

Leu His  Leu Gln Gly Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn
    2165                2170                2175

Asn Pro  Lys Glu Trp Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys
    2180                2185                2190

Val Thr  Gly Val Thr Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser
    2195                2200                2205

Met Tyr  Val Lys Glu Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His
    2210                2215                2220

Gln Trp  Thr Leu Phe Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln
    2225                2230                2235

Gly Asn  Gln Asp Ser Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro
    2240                2245                2250

Pro Leu  Leu Thr Arg Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val
    2255                2260                2265

His Gln  Ile Ala Leu Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln
    2270                2275                2280

Asp Leu  Tyr Gly Ser Pro Gly  Gln Ser Pro Arg Ser  Phe Gln Gly
    2285                2290                2295

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu
    2300                2305                2310

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    2315                2320                2325

Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2330                2335                2340

Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2345                2350                2355
```

```
Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    2360                2365                2370

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    2375                2380                2385

Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    2390                2395                2400

Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2405                2410                2415

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    2420                2425                2430

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    2435                2440                2445

Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2450                2455                2460

Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2465                2470                2475

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    2480                2485                2490

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    2495                2500                2505

Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2510                2515                2520

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2525                2530                2535

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    2540                2545                2550

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr
```

```
    2555                2560                2565

Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2570                2575                2580

Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2585                2590                2595

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    2600                2605                2610

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    2615                2620                2625

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2630                2635                2640

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2645                2650                2655

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    2660                2665                2670

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    2675                2680                2685

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2690                2695                2700

Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2705                2710                2715

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    2720                2725                2730

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    2735                2740                2745

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2750                2755                2760
```

```
Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2765                 2770                 2775


Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    2780                 2785                 2790


Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr
    2795                 2800                 2805


Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2810                 2815                 2820


Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2825                 2830                 2835


Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu
    2840                 2845                 2850


Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    2855                 2860                 2865


Glu Gly  Ser Ala Pro
    2870
```

<210> 1562
<211> 2572
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1562

```
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1               5                  10                  15


Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
            20                  25                  30


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


Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
```

```
    50                  55                  60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile
65                  70                  75                  80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
                85                  90                  95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
            100                 105                 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
        115                 120                 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
    130                 135                 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145                 150                 155                 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
                165                 170                 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
            180                 185                 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
        195                 200                 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
    210                 215                 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225                 230                 235                 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
                245                 250                 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
            260                 265                 270
```

```
Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
        275                 280                 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
    290                 295                 300

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

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
                325                 330                 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
            340                 345                 350

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

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
    370                 375                 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385                 390                 395                 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
                405                 410                 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
            420                 425                 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
        435                 440                 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
    450                 455                 460

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465                 470                 475                 480

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
                485                 490                 495
```

```
His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
            500                 505                 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
        515                 520                 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
    530                 535                 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545                 550                 555                 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
                565                 570                 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
            580                 585                 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
        595                 600                 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
    610                 615                 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625                 630                 635                 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
                645                 650                 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
            660                 665                 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
        675                 680                 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
    690                 695                 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705                 710                 715                 720
```

```
Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
                725                 730                 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
            740                 745                 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Pro Gly Thr Pro Gly Ser
        755                 760                 765

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
    770                 775                 780

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
785                 790                 795                 800

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Thr Pro
                805                 810                 815

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            820                 825                 830

Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
        835                 840                 845

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
    850                 855                 860

Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
865                 870                 875                 880

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly
                885                 890                 895

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
            900                 905                 910

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
        915                 920                 925

Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
```

```
    930                 935                 940

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly
945                 950                 955                 960

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
                965                 970                 975

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
            980                 985                 990

Ser Ser Thr Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
        995                 1000                1005

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1010                1015                1020

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1025                1030                1035

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1040                1045                1050

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Pro Ser
    1055                1060                1065

Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1070                1075                1080

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1085                1090                1095

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala
    1100                1105                1110

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1115                1120                1125

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1130                1135                1140
```

```
Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1145                1150                1155

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1160                1165                1170

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1175                1180                1185

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1190                1195                1200

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1205                1210                1215

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1220                1225                1230

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Pro Ser
    1235                1240                1245

Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1250                1255                1260

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1265                1270                1275

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1280                1285                1290

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Pro Ser
    1295                1300                1305

Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1310                1315                1320

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1325                1330                1335

Gln Ser  Pro Arg Ser Phe Gln  Lys Lys Thr Arg His  Tyr Phe Ile
    1340                1345                1350
```

```
Ala Ala  Val Glu Arg Leu Trp  Asp Tyr Gly Met Ser  Ser Ser Pro
    1355                1360                1365

His Val  Leu Arg Asn Arg Ala  Gln Ser Gly Ser Val  Pro Gln Phe
    1370                1375                1380

Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp Gly Ser  Phe Thr Gln
    1385                1390                1395

Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His Leu Gly  Leu Leu Gly
    1400                1405                1410

Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn Ile Met  Val Thr Phe
    1415                1420                1425

Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe Tyr Ser  Ser Leu Ile
    1430                1435                1440

Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala Glu Pro  Arg Lys Asn
    1445                1450                1455

Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr Phe Trp  Lys Val Gln
    1460                1465                1470

His His  Met Ala Pro Thr Lys  Asp Glu Phe Asp Cys  Lys Ala Trp
    1475                1480                1485

Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys Asp Val  His Ser Gly
    1490                1495                1500

Leu Ile  Gly Pro Leu Leu Val  Cys His Thr Asn Thr  Leu Asn Pro
    1505                1510                1515

Ala His  Gly Arg Gln Val Thr  Val Gln Glu Phe Ala  Leu Phe Phe
    1520                1525                1530

Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr Phe Thr  Glu Asn Met
    1535                1540                1545

Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile Gln Met  Glu Asp Pro
    1550                1555                1560
```

```
Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala Ile Asn  Gly Tyr Ile
    1565                1570                1575

Met Asp  Thr Leu Pro Gly Leu  Val Met Ala Gln Asp  Gln Arg Ile
    1580                1585                1590

Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn Glu Asn  Ile His Ser
    1595                1600                1605

Ile His  Phe Ser Gly His Val  Phe Thr Val Arg Lys  Lys Glu Glu
    1610                1615                1620

Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro Gly Val  Phe Glu Thr
    1625                1630                1635

Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile Trp Arg  Val Glu Cys
    1640                1645                1650

Leu Ile  Gly Glu His Leu His  Ala Gly Met Ser Thr  Leu Phe Leu
    1655                1660                1665

Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu Gly Met  Ala Ser Gly
    1670                1675                1680

His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser Gly Gln  Tyr Gly Gln
    1685                1690                1695

Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr Ser Gly  Ser Ile Asn
    1700                1705                1710

Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp Ile Lys  Val Asp Leu
    1715                1720                1725

Leu Ala  Pro Met Ile Ile His  Gly Ile Lys Thr Gln  Gly Ala Arg
    1730                1735                1740

Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln Phe Ile  Ile Met Tyr
    1745                1750                1755

Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr Arg Gly  Asn Ser Thr
```

```
    1760                1765                1770

Gly Thr  Leu Met Val Phe Phe  Gly Asn Val Asp Ser  Ser Gly Ile
    1775                1780                1785

Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile Ala Arg  Tyr Ile Arg
    1790                1795                1800

Leu His  Pro Thr His Tyr Ser  Ile Arg Ser Thr Leu  Arg Met Glu
    1805                1810                1815

Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser Met Pro  Leu Gly Met
    1820                1825                1830

Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile Thr Ala  Ser Ser Tyr
    1835                1840                1845

Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro Ser Lys  Ala Arg Leu
    1850                1855                1860

His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg Pro Gln  Val Asn Asn
    1865                1870                1875

Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln Lys Thr  Met Lys Val
    1880                1885                1890

Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser Leu Leu  Thr Ser Met
    1895                1900                1905

Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser Gln Asp  Gly His Gln
    1910                1915                1920

Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val Lys Val  Phe Gln Gly
    1925                1930                1935

Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn Ser Leu  Asp Pro Pro
    1940                1945                1950

Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro Gln Ser  Trp Val His
    1955                1960                1965
```

```
Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly Cys Glu  Ala Gln Asp
    1970                1975                1980

Leu Tyr  Gly Ser Pro Gly Gln  Ser Pro Arg Ser Phe  Gln Pro Gly
    1985                1990                1995

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    2000                2005                2010

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    2015                2020                2025

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    2030                2035                2040

Gly Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    2045                2050                2055

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ala Ser Pro
    2060                2065                2070

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2075                2080                2085

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2090                2095                2100

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    2105                2110                2115

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    2120                2125                2130

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2135                2140                2145

Ser Thr  Gly Ser Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    2150                2155                2160

Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    2165                2170                2175
```

```
Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    2180                2185                2190

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2195                2200                2205

Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    2210                2215                2220

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    2225                2230                2235

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly
    2240                2245                2250

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    2255                2260                2265

Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    2270                2275                2280

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    2285                2290                2295

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    2300                2305                2310

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2315                2320                2325

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    2330                2335                2340

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2345                2350                2355

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    2360                2365                2370

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2375                2380                2385
```

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
2390 2395 2400

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
2405 2410 2415

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
2420 2425 2430

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
2435 2440 2445

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
2450 2455 2460

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
2465 2470 2475

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
2480 2485 2490

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
2495 2500 2505

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser
2510 2515 2520

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
2525 2530 2535

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
2540 2545 2550

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
2555 2560 2565

Ser Thr Gly Ser
2570

<210> 1563

<211> 2297
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1563
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1 5 10 15

Cys Phe Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
20 25 30

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
35 40 45

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
50 55 60

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
65 70 75 80

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
85 90 95

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
100 105 110

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
115 120 125

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
130 135 140

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
145 150 155 160

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
165 170 175

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
180 185 190

```
Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
        195                 200                 205

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    210                 215                 220

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
225                 230                 235                 240

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
                245                 250                 255

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            260                 265                 270

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
        275                 280                 285

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    290                 295                 300

Thr Gly Ser Gln Ser Pro Arg Ser Phe Gln Gly Pro Ser Gly Pro Ala
305                 310                 315                 320

Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr Met
                325                 330                 335

Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg
            340                 345                 350

Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr
        355                 360                 365

Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro Arg
    370                 375                 380

Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr
385                 390                 395                 400

Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val Ser
```

405 410 415

Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu
420 425 430

Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe
435 440 445

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

Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His
465 470 475 480

Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu
485 490 495

Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His
500 505 510

Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His
515 520 525

Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala
530 535 540

Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg Ser
545 550 555 560

Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His Val
565 570 575

Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly
580 585 590

His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser
595 600 605

Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln
610 615 620

```
Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met Glu
625                 630                 635                 640

Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met
                645                 650                 655

Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser
            660                 665                 670

Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile
        675                 680                 685

Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr
    690                 695                 700

Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala
705                 710                 715                 720

Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln
                725                 730                 735

Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp
            740                 745                 750

Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu
        755                 760                 765

Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe
    770                 775                 780

Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr
785                 790                 795                 800

Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His
                805                 810                 815

Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp
            820                 825                 830

Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu
        835                 840                 845
```

```
Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser
    850                 855                 860

Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln
865                 870                 875                 880

Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser
                885                 890                 895

Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg
            900                 905                 910

Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln
        915                 920                 925

Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu
    930                 935                 940

Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser
945                 950                 955                 960

Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr
                965                 970                 975

Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe
            980                 985                 990

Ser Gly Glu Thr Val Phe Met Ser  Met Glu Asn Pro Gly  Leu Trp Ile
        995                 1000                1005

Leu Gly  Cys His Asn Ser Asp  Phe Arg Asn Arg Gly  Met Thr Ala
    1010                1015                1020

Leu Leu  Lys Val Ser Ser Cys  Asp Lys Asn Thr Gly  Asp Tyr Tyr
    1025                1030                1035

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

Asn Ala  Ile Glu Pro Arg Ser  Phe Ser Pro Gly Ala  Ser Pro Gly
    1055                1060                1065
```

```
Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1070                1075                1080

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1085                1090                1095

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr
    1100                1105                1110

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1115                1120                1125

Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1130                1135                1140

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1145                1150                1155

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1160                1165                1170

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser
    1175                1180                1185

Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1190                1195                1200

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1205                1210                1215

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1220                1225                1230

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser
    1235                1240                1245

Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1250                1255                1260

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
```

1265 1270 1275

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
1280 1285 1290

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
1295 1300 1305

Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
1310 1315 1320

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
1325 1330 1335

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Gln Ser Pro
1340 1345 1350

Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val
1355 1360 1365

Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu
1370 1375 1380

Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
1385 1390 1395

Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
1400 1405 1410

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile
1415 1420 1425

Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln
1430 1435 1440

Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu
1445 1450 1455

Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys
1460 1465 1470

```
Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys Val Gln  His His Met
    1475                1480                1485

Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe
    1490                1495                1500

Ser Asp  Val Asp Leu Glu Lys  Asp Val His Ser Gly  Leu Ile Gly
    1505                1510                1515

Pro Leu  Leu Val Cys His Thr  Asn Thr Leu Asn Pro  Ala His Gly
    1520                1525                1530

Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
    1535                1540                1545

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    1550                1555                1560

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    1565                1570                1575

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    1580                1585                1590

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    1595                1600                1605

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    1610                1615                1620

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    1625                1630                1635

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
    1640                1645                1650

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    1655                1660                1665

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
    1670                1675                1680
```

```
Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
    1685                1690                1695

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    1700                1705                1710

Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    1715                1720                1725

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    1730                1735                1740

Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    1745                1750                1755

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    1760                1765                1770

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    1775                1780                1785

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    1790                1795                1800

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    1805                1810                1815

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    1820                1825                1830

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    1835                1840                1845

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    1850                1855                1860

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    1865                1870                1875

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    1880                1885                1890
```

```
Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    1895                1900                1905

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    1910                1915                1920

Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    1925                1930                1935

Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
    1940                1945                1950

Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    1955                1960                1965

Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
    1970                1975                1980

Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr Gly
    1985                1990                1995

Pro Ser  Gly Pro Gln Ser Pro  Arg Ser Phe Gln Gly  Thr Ser Glu
    2000                2005                2010

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    2015                2020                2025

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2030                2035                2040

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2045                2050                2055

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    2060                2065                2070

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro
    2075                2080                2085

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
```

```
    2090                2095                2100

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2105                2110                2115

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala
    2120                2125                2130

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    2135                2140                2145

Thr Ser  Thr Glu Glu Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2150                2155                2160

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2165                2170                2175

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu
    2180                2185                2190

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    2195                2200                2205

Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    2210                2215                2220

Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2225                2230                2235

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    2240                2245                2250

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Glu Pro  Ala Thr Ser
    2255                2260                2265

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2270                2275                2280

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro
    2285                2290                2295
```

<210> 1564
<211> 2572
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1564
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1 5 10 15

Cys Phe Ser Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
20 25 30

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
35 40 45

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
50 55 60

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
65 70 75 80

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
85 90 95

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
100 105 110

Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
115 120 125

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
130 135 140

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
145 150 155 160

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
165 170 175

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu

```
            180                 185                 190

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
        195                 200                 205

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    210                 215                 220

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
225                 230                 235                 240

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                245                 250                 255

Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
            260                 265                 270

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        275                 280                 285

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    290                 295                 300

Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
305                 310                 315                 320

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
                325                 330                 335

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
            340                 345                 350

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
        355                 360                 365

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    370                 375                 380

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
385                 390                 395                 400
```

```
Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
                405                 410                 415

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
            420                 425                 430

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
        435                 440                 445

Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
    450                 455                 460

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser
465                 470                 475                 480

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                485                 490                 495

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
            500                 505                 510

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser
        515                 520                 525

Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    530                 535                 540

Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
545                 550                 555                 560

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
                565                 570                 575

Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            580                 585                 590

Ser Ala Pro Gln Ser Pro Arg Ser Phe Gln Gly Ser Pro Gly Ala Thr
        595                 600                 605

Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln
    610                 615                 620
```

```
Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val
625                 630                 635                 640


Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu
                645                 650                 655


Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro Arg Pro
            660                 665                 670


Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp
        675                 680                 685


Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu
    690                 695                 700


His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr
705                 710                 715                 720


Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro
                725                 730                 735


Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro
            740                 745                 750


Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val
        755                 760                 765


Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val
    770                 775                 780


Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys
785                 790                 795                 800


Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser
                805                 810                 815


Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg
            820                 825                 830


Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu
        835                 840                 845
```

```
Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile
    850                 855                 860

Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His
865                 870                 875                 880

Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro
                885                 890                 895

Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe
            900                 905                 910

Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met Glu Ala
        915                 920                 925

Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys
    930                 935                 940

Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu
945                 950                 955                 960

Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln
                965                 970                 975

Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile
            980                 985                 990

Ala Ala Glu Glu Glu Asp Trp Asp  Tyr Ala Pro Leu Val  Leu Ala Pro
        995                 1000                1005

Asp Asp  Arg Ser Tyr Lys Ser  Gln Tyr Leu Asn Asn  Gly Pro Gln
    1010                1015                1020

Arg Ile  Gly Arg Lys Tyr Lys  Lys Val Arg Phe Met  Ala Tyr Thr
    1025                1030                1035

Asp Glu  Thr Phe Lys Thr Arg  Glu Ala Ile Gln His  Glu Ser Gly
    1040                1045                1050

Ile Leu  Gly Pro Leu Leu Tyr  Gly Glu Val Gly Asp  Thr Leu Leu
```

```
    1055                1060                1065

Ile Ile  Phe Lys Asn Gln Ala  Ser Arg Pro Tyr Asn  Ile Tyr Pro
    1070                1075                1080

His Gly  Ile Thr Asp Val Arg  Pro Leu Tyr Ser Arg  Arg Leu Pro
    1085                1090                1095

Lys Gly  Val Lys His Leu Lys  Asp Phe Pro Ile Leu  Pro Gly Glu
    1100                1105                1110

Ile Phe  Lys Tyr Lys Trp Thr  Val Thr Val Glu Asp  Gly Pro Thr
    1115                1120                1125

Lys Ser  Asp Pro Arg Cys Leu  Thr Arg Tyr Tyr Ser  Ser Phe Val
    1130                1135                1140

Asn Met  Glu Arg Asp Leu Ala  Ser Gly Leu Ile Gly  Pro Leu Leu
    1145                1150                1155

Ile Cys  Tyr Lys Glu Ser Val  Asp Gln Arg Gly Asn  Gln Ile Met
    1160                1165                1170

Ser Asp  Lys Arg Asn Val Ile  Leu Phe Ser Val Phe  Asp Glu Asn
    1175                1180                1185

Arg Ser  Trp Tyr Leu Thr Glu  Asn Ile Gln Arg Phe  Leu Pro Asn
    1190                1195                1200

Pro Ala  Gly Val Gln Leu Glu  Asp Pro Glu Phe Gln  Ala Ser Asn
    1205                1210                1215

Ile Met  His Ser Ile Asn Gly  Tyr Val Phe Asp Ser  Leu Gln Leu
    1220                1225                1230

Ser Val  Cys Leu His Glu Val  Ala Tyr Trp Tyr Ile  Leu Ser Ile
    1235                1240                1245

Gly Ala  Gln Thr Asp Phe Leu  Ser Val Phe Phe Ser  Gly Tyr Thr
    1250                1255                1260
```

```
Phe Lys  His Lys Met Val Tyr  Glu Asp Thr Leu Thr  Leu Phe Pro
    1265                1270                1275

Phe Ser  Gly Glu Thr Val Phe  Met Ser Met Glu Asn  Pro Gly Leu
    1280                1285                1290

Trp Ile  Leu Gly Cys His Asn  Ser Asp Phe Arg Asn  Arg Gly Met
    1295                1300                1305

Thr Ala  Leu Leu Lys Val Ser  Ser Cys Asp Lys Asn  Thr Gly Asp
    1310                1315                1320

Tyr Tyr  Glu Asp Ser Tyr Glu  Asp Ile Ser Ala Tyr  Leu Leu Ser
    1325                1330                1335

Lys Asn  Asn Ala Ile Glu Pro  Arg Ser Phe Ser Pro  Gly Thr Pro
    1340                1345                1350

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser
    1355                1360                1365

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
    1370                1375                1380

Thr Gly  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    1385                1390                1395

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1400                1405                1410

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1415                1420                1425

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1430                1435                1440

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1445                1450                1455

Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser
    1460                1465                1470
```

```
Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1475                 1480                 1485

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1490                 1495                 1500

Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    1505                 1510                 1515

Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser
    1520                 1525                 1530

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1535                 1540                 1545

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1550                 1555                 1560

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1565                 1570                 1575

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ala Ser
    1580                 1585                 1590

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly
    1595                 1600                 1605

Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1610                 1615                 1620

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1625                 1630                 1635

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1640                 1645                 1650

Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr
    1655                 1660                 1665

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1670                 1675                 1680
```

```
Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1685                1690                1695

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1700                1705                1710

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1715                1720                1725

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1730                1735                1740

Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1745                1750                1755

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro
    1760                1765                1770

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser
    1775                1780                1785

Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1790                1795                1800

Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1805                1810                1815

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1820                1825                1830

Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala
    1835                1840                1845

Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1850                1855                1860

Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1865                1870                1875

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
```

```
    1880                1885                1890

Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala
    1895                1900                1905

Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1910                1915                1920

Gly Ser  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1925                1930                1935

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1940                1945                1950

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1955                1960                1965

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1970                1975                1980

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1985                1990                1995

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    2000                2005                2010

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    2015                2020                2025

Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    2030                2035                2040

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    2045                2050                2055

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    2060                2065                2070

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    2075                2080                2085
```

```
Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    2090                2095                2100

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    2105                2110                2115

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    2120                2125                2130

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    2135                2140                2145

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    2150                2155                2160

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    2165                2170                2175

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    2180                2185                2190

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    2195                2200                2205

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    2210                2215                2220

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    2225                2230                2235

Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    2240                2245                2250

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    2255                2260                2265

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    2270                2275                2280

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    2285                2290                2295
```

```
Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    2300                 2305                 2310

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    2315                 2320                 2325

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    2330                 2335                 2340

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    2345                 2350                 2355

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    2360                 2365                 2370

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    2375                 2380                 2385

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    2390                 2395                 2400

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    2405                 2410                 2415

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    2420                 2425                 2430

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
    2435                 2440                 2445

Arg Leu  His Leu Gln Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val
    2450                 2455                 2460

Asn Asn  Pro Lys Glu Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met
    2465                 2470                 2475

Lys Val  Thr Gly Val Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr
    2480                 2485                 2490

Ser Met  Tyr Val Lys Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly
    2495                 2500                 2505
```

```
His Gln  Trp Thr Leu Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe
    2510                2515                2520


Gln Gly  Asn Gln Asp Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp
    2525                2530                2535


Pro Pro  Leu Leu Thr Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp
    2540                2545                2550


Val His  Gln Ile Ala Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala
    2555                2560                2565


Gln Asp  Leu Tyr
    2570
```

<210> 1565
<211> 2360
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1565

```
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                   10                  15


Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30


Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45


Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60


Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80


Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95
```

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Ser
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Lys
        355                 360                 365

Leu Thr Arg Ala Glu Thr Gly Glu Pro Ser Glu Gly Ser Ala Pro Gly
    370                 375                 380

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
385                 390                 395                 400

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
                405                 410                 415

Gly Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp
            420                 425                 430

Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu
        435                 440                 445

Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn
    450                 455                 460

Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala
465                 470                 475                 480

Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser
                485                 490                 495

Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu
            500                 505                 510

Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His
        515                 520                 525

Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly
```

```
    530                 535                 540

Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys
545                 550                 555                 560

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

Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp
            580                 585                 590

Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser
        595                 600                 605

Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile
    610                 615                 620

Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn
625                 630                 635                 640

Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro
                645                 650                 655

Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe
            660                 665                 670

Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr
        675                 680                 685

Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser
    690                 695                 700

Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu
705                 710                 715                 720

Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly
                725                 730                 735

Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met
            740                 745                 750
```

```
Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr
        755                 760                 765

Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn
    770                 775                 780

Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys
785                 790                 795                 800

Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu
                805                 810                 815

Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp
            820                 825                 830

Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln
        835                 840                 845

Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp
    850                 855                 860

Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser
865                 870                 875                 880

Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp
                885                 890                 895

Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu
            900                 905                 910

Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met
        915                 920                 925

Val Thr Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser
    930                 935                 940

Leu Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys
945                 950                 955                 960

Asn Phe Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln
                965                 970                 975
```

```
His His Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala
            980                 985                 990

Tyr Phe Ser Asp Val Asp Leu Glu  Lys Asp Val His Ser  Gly Leu Ile
        995                 1000                1005

Gly Pro  Leu Leu Val Cys His  Thr Asn Thr Leu Asn  Pro Ala His
    1010                1015                1020

Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile
    1025                1030                1035

Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg
    1040                1045                1050

Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe
    1055                1060                1065

Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp
    1070                1075                1080

Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp
    1085                1090                1095

Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn Ile His  Ser Ile His
    1100                1105                1110

Phe Ser  Gly His Val Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys
    1115                1120                1125

Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu
    1130                1135                1140

Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile
    1145                1150                1155

Gly Glu  His Leu His Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr
    1160                1165                1170

Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met Ala Ser  Gly His Ile
    1175                1180                1185
```

```
Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala
    1190                 1195                 1200

Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp
    1205                 1210                 1215

Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala
    1220                 1225                 1230

Pro Met  Ile Ile His Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys
    1235                 1240                 1245

Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu
    1250                 1255                 1260

Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr
    1265                 1270                 1275

Leu Met  Val Phe Phe Gly Asn  Val Asp Ser Ser Gly  Ile Lys His
    1280                 1285                 1290

Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His
    1295                 1300                 1305

Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met
    1310                 1315                 1320

Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser
    1325                 1330                 1335

Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr
    1340                 1345                 1350

Asn Met  Phe Ala Thr Trp Thr  Pro Ser Lys Ala Arg  Leu His Leu
    1355                 1360                 1365

Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys
    1370                 1375                 1380

Glu Trp  Leu Gln Val Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly
```

```
    1385                1390                1395

Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val
    1400                1405                1410

Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr
    1415                1420                1425

Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln
    1430                1435                1440

Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu
    1445                1450                1455

Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser Trp Val  His Gln Ile
    1460                1465                1470

Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1475                1480                1485

Lys Leu  Thr Arg Ala Glu Thr  Gly Gly Ser Pro Ala  Gly Ser Pro
    1490                1495                1500

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1505                1510                1515

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1520                1525                1530

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr
    1535                1540                1545

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    1550                1555                1560

Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1565                1570                1575

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1580                1585                1590
```

```
Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Pro Ala
    1595                 1600                 1605

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr
    1610                 1615                 1620

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1625                 1630                 1635

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1640                 1645                 1650

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr
    1655                 1660                 1665

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    1670                 1675                 1680

Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1685                 1690                 1695

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1700                 1705                 1710

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1715                 1720                 1725

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Thr  Glu Pro Ser
    1730                 1735                 1740

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1745                 1750                 1755

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1760                 1765                 1770

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala
    1775                 1780                 1785

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr
    1790                 1795                 1800
```

```
Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1805                 1810                 1815

Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1820                 1825                 1830

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    1835                 1840                 1845

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    1850                 1855                 1860

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1865                 1870                 1875

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1880                 1885                 1890

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
    1895                 1900                 1905

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    1910                 1915                 1920

Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1925                 1930                 1935

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1940                 1945                 1950

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1955                 1960                 1965

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1970                 1975                 1980

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1985                 1990                 1995

Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2000                 2005                 2010
```

```
Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    2015                 2020                 2025

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro
    2030                 2035                 2040

Thr Ser  Thr Glu Glu Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2045                 2050                 2055

Gly Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    2060                 2065                 2070

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    2075                 2080                 2085

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    2090                 2095                 2100

Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    2105                 2110                 2115

Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2120                 2125                 2130

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala
    2135                 2140                 2145

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr
    2150                 2155                 2160

Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    2165                 2170                 2175

Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    2180                 2185                 2190

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala
    2195                 2200                 2205

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
```

2210 2215 2220

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
2225 2230 2235

Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
2240 2245 2250

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
2255 2260 2265

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser
2270 2275 2280

Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
2285 2290 2295

Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
2300 2305 2310

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
2315 2320 2325

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr
2330 2335 2340

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
2345 2350 2355

Ala Pro
2360

<210> 1566
<211> 2615
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1566
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

```
Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
```

```
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445
```

```
Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670
```

```
Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Leu Gly Arg Ile Val Gly
            740                 745                 750

Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
        755                 760                 765

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
    770                 775                 780

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
785                 790                 795                 800

Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
                805                 810                 815

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
            820                 825                 830

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly
        835                 840                 845

Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser
    850                 855                 860

Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala
865                 870                 875                 880

Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
                885                 890                 895
```

```
Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
            900                 905                 910

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala
        915                 920                 925

Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
    930                 935                 940

Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
945                 950                 955                 960

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser
                965                 970                 975

Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr
            980                 985                 990

Gly Pro Gly Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
        995                 1000                1005

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser
    1010                1015                1020

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1025                1030                1035

Thr Gly  Ser Gly Pro Leu Gly  Arg Ile Val Gly Gly  Pro Pro Val
    1040                1045                1050

Leu Lys  Arg His Gln Arg Glu  Ile Thr Arg Thr Thr  Leu Gln Ser
    1055                1060                1065

Asp Gln  Glu Glu Ile Asp Tyr  Asp Asp Thr Ile Ser  Val Glu Met
    1070                1075                1080

Lys Lys  Glu Asp Phe Asp Ile  Tyr Asp Glu Asp Glu  Asn Gln Ser
    1085                1090                1095

Pro Arg  Ser Phe Gln Lys Lys  Thr Arg His Tyr Phe  Ile Ala Ala
```

```
    1100                1105                1110

Val Glu  Arg Leu Trp Asp Tyr  Gly Met Ser Ser Ser  Pro His Val
    1115                1120                1125

Leu Arg  Asn Arg Ala Gln Ser  Gly Ser Val Pro Gln  Phe Lys Lys
    1130                1135                1140

Val Val  Phe Gln Glu Phe Thr  Asp Gly Ser Phe Thr  Gln Pro Leu
    1145                1150                1155

Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly Leu Leu  Gly Pro Tyr
    1160                1165                1170

Ile Arg  Ala Glu Val Glu Asp  Asn Ile Met Val Thr  Phe Arg Asn
    1175                1180                1185

Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser Ser Leu  Ile Ser Tyr
    1190                1195                1200

Glu Glu  Asp Gln Arg Gln Gly  Ala Glu Pro Arg Lys  Asn Phe Val
    1205                1210                1215

Lys Pro  Asn Glu Thr Lys Thr  Tyr Phe Trp Lys Val  Gln His His
    1220                1225                1230

Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys Lys Ala  Trp Ala Tyr
    1235                1240                1245

Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val His Ser  Gly Leu Ile
    1250                1255                1260

Gly Pro  Leu Leu Val Cys His  Thr Asn Thr Leu Asn  Pro Ala His
    1265                1270                1275

Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala Leu Phe  Phe Thr Ile
    1280                1285                1290

Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr Glu Asn  Met Glu Arg
    1295                1300                1305
```

```
Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe
    1310                1315                1320

Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp
    1325                1330                1335

Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp
    1340                1345                1350

Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn Ile His  Ser Ile His
    1355                1360                1365

Phe Ser  Gly His Val Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys
    1370                1375                1380

Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu
    1385                1390                1395

Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile
    1400                1405                1410

Gly Glu  His Leu His Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr
    1415                1420                1425

Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met Ala Ser  Gly His Ile
    1430                1435                1440

Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala
    1445                1450                1455

Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp
    1460                1465                1470

Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala
    1475                1480                1485

Pro Met  Ile Ile His Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys
    1490                1495                1500

Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu
    1505                1510                1515
```

```
Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr
    1520                1525                1530

Leu Met  Val Phe Phe Gly Asn  Val Asp Ser Ser Gly  Ile Lys His
    1535                1540                1545

Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His
    1550                1555                1560

Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met
    1565                1570                1575

Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser
    1580                1585                1590

Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr
    1595                1600                1605

Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu
    1610                1615                1620

Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys
    1625                1630                1635

Glu Trp  Leu Gln Val Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly
    1640                1645                1650

Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val
    1655                1660                1665

Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr
    1670                1675                1680

Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln
    1685                1690                1695

Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu
    1700                1705                1710

Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser Trp Val  His Gln Ile
    1715                1720                1725
```

```
Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1730                1735                1740

Pro Leu  Gly Arg Ile Val Gly  Gly Gly Ala Ser Pro  Gly Thr Ser
    1745                1750                1755

Ser Thr  Gly Ser Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1760                1765                1770

Gly Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1775                1780                1785

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1790                1795                1800

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    1805                1810                1815

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1820                1825                1830

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1835                1840                1845

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly
    1850                1855                1860

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1865                1870                1875

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1880                1885                1890

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1895                1900                1905

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ala Ser Pro
    1910                1915                1920

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
```

```
    1925                1930                1935

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1940                1945                1950

Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly
    1955                1960                1965

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Thr
    1970                1975                1980

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1985                1990                1995

Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2000                2005                2010

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2015                2020                2025

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly
    2030                2035                2040

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2045                2050                2055

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2060                2065                2070

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2075                2080                2085

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly
    2090                2095                2100

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2105                2110                2115

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2120                2125                2130
```

```
Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2135                2140                2145

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    2150                2155                2160

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2165                2170                2175

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    2180                2185                2190

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    2195                2200                2205

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    2210                2215                2220

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    2225                2230                2235

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2240                2245                2250

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2255                2260                2265

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro
    2270                2275                2280

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2285                2290                2295

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2300                2305                2310

Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2315                2320                2325

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    2330                2335                2340
```

```
Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    2345                 2350                 2355

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    2360                 2365                 2370

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    2375                 2380                 2385

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr
    2390                 2395                 2400

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    2405                 2410                 2415

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    2420                 2425                 2430

Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2435                 2440                 2445

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    2450                 2455                 2460

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    2465                 2470                 2475

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    2480                 2485                 2490

Gly Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2495                 2500                 2505

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Thr
    2510                 2515                 2520

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    2525                 2530                 2535

Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    2540                 2545                 2550
```

Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
    2555   2560   2565

Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
    2570   2575   2580

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
    2585   2590   2595

Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly
    2600   2605   2610

Ser Pro
    2615

<210> 1567
<211> 2242
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1567
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Leu Gln Val Arg Ile Val Gly Gly Gly Ala Pro Ser Pro Ser Ala Ser
    130                 135                 140

Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
145                 150                 155                 160

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Pro Ser
                165                 170                 175

Gly Pro Gly Leu Gln Val Arg Ile Val Gly Gly Phe Pro Gly Gly Ser
            180                 185                 190

His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser
        195                 200                 205

Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val
    210                 215                 220

Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu
225                 230                 235                 240

Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu
                245                 250                 255

Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys
            260                 265                 270

Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro
        275                 280                 285

Lys Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu
    290                 295                 300

Ile Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly
305                 310                 315                 320
```

```
Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu
                325                 330                 335

Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe
            340                 345                 350

Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe
        355                 360                 365

Cys His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys
    370                 375                 380

Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu
385                 390                 395                 400

Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val
                405                 410                 415

Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser
            420                 425                 430

Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu
        435                 440                 445

Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg
    450                 455                 460

Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg
465                 470                 475                 480

Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys
                485                 490                 495

Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu
            500                 505                 510

Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala
        515                 520                 525

Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro
```

```
    530                 535                 540

Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe
545                 550                 555                 560

Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val
                565                 570                 575

Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr
            580                 585                 590

Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly
        595                 600                 605

Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln
    610                 615                 620

Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu
625                 630                 635                 640

Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn
                645                 650                 655

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

Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val
        675                 680                 685

Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln
    690                 695                 700

Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys
705                 710                 715                 720

Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr
                725                 730                 735

Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His
            740                 745                 750
```

```
Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser
        755                 760                 765

Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp
    770                 775                 780

Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser
785                 790                 795                 800

Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr
                805                 810                 815

Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr
            820                 825                 830

Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp
        835                 840                 845

Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe
    850                 855                 860

Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro
865                 870                 875                 880

His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys
                885                 890                 895

Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu
            900                 905                 910

Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile
        915                 920                 925

Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala
    930                 935                 940

Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp
945                 950                 955                 960

Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu
                965                 970                 975
```

```
Thr Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys
            980                 985                 990

Asp Glu Phe Asp Cys Lys Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu
        995                 1000                1005

Glu Lys  Asp Val His Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys
    1010                1015                1020

His Thr  Asn Thr Leu Asn Pro  Ala His Gly Arg Gln  Val Thr Val
    1025                1030                1035

Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser
    1040                1045                1050

Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys
    1055                1060                1065

Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe
    1070                1075                1080

His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val
    1085                1090                1095

Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly
    1100                1105                1110

Ser Asn  Glu Asn Ile His Ser  Ile His Phe Ser Gly  His Val Phe
    1115                1120                1125

Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu
    1130                1135                1140

Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala
    1145                1150                1155

Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly Glu His  Leu His Ala
    1160                1165                1170

Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr
    1175                1180                1185
```

```
Pro Leu  Gly Met Ala Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr
    1190                1195                1200

Ala Ser  Gly Gln Tyr Gly Leu  Gln Val Arg Ile Val  Gly Gly Ser
    1205                1210                1215

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1220                1225                1230

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    1235                1240                1245

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    1250                1255                1260

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Pro Ser
    1265                1270                1275

Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1280                1285                1290

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1295                1300                1305

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1310                1315                1320

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Pro Ser
    1325                1330                1335

Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1340                1345                1350

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Leu Gln Val  Arg Ile Val
    1355                1360                1365

Gly Gly  Gln Trp Ala Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly
    1370                1375                1380

Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys
```

```
    1385                1390                1395

Val Asp  Leu Leu Ala Pro Met  Ile Ile His Gly Ile  Lys Thr Gln
    1400                1405                1410

Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile
    1415                1420                1425

Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly
    1430                1435                1440

Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe Gly Asn  Val Asp Ser
    1445                1450                1455

Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg
    1460                1465                1470

Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu
    1475                1480                1485

Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro
    1490                1495                1500

Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala
    1505                1510                1515

Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys
    1520                1525                1530

Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln
    1535                1540                1545

Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val Asp Phe  Gln Lys Thr
    1550                1555                1560

Met Lys  Val Thr Gly Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu
    1565                1570                1575

Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp
    1580                1585                1590
```

```
Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val
    1595                 1600                 1605

Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu
    1610                 1615                 1620

Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser
    1625                 1630                 1635

Trp Val  His Gln Ile Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu
    1640                 1645                 1650

Ala Gln  Asp Leu Tyr Leu Gln  Val Arg Ile Val Gly  Gly Pro Gly
    1655                 1660                 1665

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    1670                 1675                 1680

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser
    1685                 1690                 1695

Thr Gly  Thr Gly Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1700                 1705                 1710

Gly Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1715                 1720                 1725

Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser Pro Gly  Ala Ser Pro
    1730                 1735                 1740

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1745                 1750                 1755

Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly
    1760                 1765                 1770

Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1775                 1780                 1785

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1790                 1795                 1800
```

```
Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1805                 1810                 1815

Ser Thr  Gly Ser Pro Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr
    1820                 1825                 1830

Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly
    1835                 1840                 1845

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    1850                 1855                 1860

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1865                 1870                 1875

Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1880                 1885                 1890

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1895                 1900                 1905

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly
    1910                 1915                 1920

Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly
    1925                 1930                 1935

Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    1940                 1945                 1950

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    1955                 1960                 1965

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ala Ser Pro
    1970                 1975                 1980

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    1985                 1990                 1995

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    2000                 2005                 2010
```

```
Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly
    2015                 2020                 2025

Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro
    2030                 2035                 2040

Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser
    2045                 2050                 2055

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    2060                 2065                 2070

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    2075                 2080                 2085

Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr
    2090                 2095                 2100

Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr
    2105                 2110                 2115

Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly
    2120                 2125                 2130

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    2135                 2140                 2145

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
    2150                 2155                 2160

Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala Ser Pro  Gly Thr Ser
    2165                 2170                 2175

Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser
    2180                 2185                 2190

Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly
    2195                 2200                 2205

Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro
```

2210 2215 2220

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
2225 2230 2235

Ser Thr Gly Ser
2240

<210> 1568
<211> 3351
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1568
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
100 105 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145                 150                 155                 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
```

```
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545                 550                 555                 560

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                565                 570                 575
```

```
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            580                 585                 590

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    610                 615                 620

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                645                 650                 655

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        675                 680                 685

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    690                 695                 700

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
                725                 730                 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
    770                 775                 780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800
```

```
Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                805                 810                 815

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            820                 825                 830

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    850                 855                 860

Gly Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp
865                 870                 875                 880

Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro
                885                 890                 895

Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys
            900                 905                 910

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

Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu
    930                 935                 940

Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro
945                 950                 955                 960

Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly
                965                 970                 975

Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys
            980                 985                 990

Val Phe Pro Gly Gly Ser His Thr  Tyr Val Trp Gln Val  Leu Lys Glu
        995                 1000                1005

Asn Gly  Pro Met Ala Ser Asp  Pro Leu Cys Leu Thr  Tyr Ser Tyr
    1010                1015                1020
```

```
Leu Ser  His Val Asp Leu Val  Lys Asp Leu Asn Ser  Gly Leu Ile
    1025                1030                1035

Gly Ala  Leu Leu Val Cys Arg  Glu Gly Ser Leu Ala  Lys Glu Lys
    1040                1045                1050

Thr Gln  Thr Leu His Lys Phe  Ile Leu Leu Phe Ala  Val Phe Asp
    1055                1060                1065

Glu Gly  Lys Ser Trp His Ser  Glu Thr Lys Asn Ser  Leu Met Gln
    1070                1075                1080

Asp Arg  Asp Ala Ala Ser Ala  Arg Ala Trp Pro Lys  Met His Thr
    1085                1090                1095

Val Asn  Gly Tyr Val Asn Arg  Ser Leu Pro Gly Leu  Ile Gly Cys
    1100                1105                1110

His Arg  Lys Ser Val Tyr Trp  His Val Ile Gly Met  Gly Thr Thr
    1115                1120                1125

Pro Glu  Val His Ser Ile Phe  Leu Glu Gly His Thr  Phe Leu Val
    1130                1135                1140

Arg Asn  His Arg Gln Ala Ser  Leu Glu Ile Ser Pro  Ile Thr Phe
    1145                1150                1155

Leu Thr  Ala Gln Thr Leu Leu  Met Asp Leu Gly Gln  Phe Leu Leu
    1160                1165                1170

Phe Cys  His Ile Ser Ser His  Gln His Asp Gly Met  Glu Ala Tyr
    1175                1180                1185

Val Lys  Val Asp Ser Cys Pro  Glu Glu Pro Gln Leu  Arg Met Lys
    1190                1195                1200

Asn Asn  Glu Glu Ala Glu Asp  Tyr Asp Asp Asp Leu  Thr Asp Ser
    1205                1210                1215

Glu Met  Asp Val Val Arg Phe  Asp Asp Asp Asn Ser  Pro Ser Phe
```

```
    1220                1225                1230

Ile Gln  Ile Arg Ser Val Ala  Lys Lys His Pro Lys  Thr Trp Val
    1235                1240                1245

His Tyr  Ile Ala Ala Glu Glu  Glu Asp Trp Asp Tyr  Ala Pro Leu
    1250                1255                1260

Val Leu  Ala Pro Asp Asp Arg  Ser Tyr Lys Ser Gln  Tyr Leu Asn
    1265                1270                1275

Asn Gly  Pro Gln Arg Ile Gly  Arg Lys Tyr Lys Lys  Val Arg Phe
    1280                1285                1290

Met Ala  Tyr Thr Asp Glu Thr  Phe Lys Thr Arg Glu  Ala Ile Gln
    1295                1300                1305

His Glu  Ser Gly Ile Leu Gly  Pro Leu Leu Tyr Gly  Glu Val Gly
    1310                1315                1320

Asp Thr  Leu Leu Ile Ile Phe  Lys Asn Gln Ala Ser  Arg Pro Tyr
    1325                1330                1335

Asn Ile  Tyr Pro His Gly Ile  Thr Asp Val Arg Pro  Leu Tyr Ser
    1340                1345                1350

Arg Arg  Leu Pro Lys Gly Val  Lys His Leu Lys Asp  Phe Pro Ile
    1355                1360                1365

Leu Pro  Gly Glu Ile Phe Lys  Tyr Lys Trp Thr Val  Thr Val Glu
    1370                1375                1380

Asp Gly  Pro Thr Lys Ser Asp  Pro Arg Cys Leu Thr  Arg Tyr Tyr
    1385                1390                1395

Ser Ser  Phe Val Asn Met Glu  Arg Asp Leu Ala Ser  Gly Leu Ile
    1400                1405                1410

Gly Pro  Leu Leu Ile Cys Tyr  Lys Glu Ser Val Asp  Gln Arg Gly
    1415                1420                1425
```

```
Asn Gln  Ile Met Ser Asp Lys  Arg Asn Val Ile Leu  Phe Ser Val
    1430                1435                1440

Phe Asp  Glu Asn Arg Ser Trp  Tyr Leu Thr Glu Asn  Ile Gln Arg
    1445                1450                1455

Phe Leu  Pro Asn Pro Ala Gly  Val Gln Leu Glu Asp  Pro Glu Phe
    1460                1465                1470

Gln Ala  Ser Asn Ile Met His  Ser Ile Asn Gly Tyr  Val Phe Asp
    1475                1480                1485

Ser Leu  Gln Leu Ser Val Cys  Leu His Glu Val Ala  Tyr Trp Tyr
    1490                1495                1500

Ile Leu  Ser Ile Gly Ala Gln  Thr Asp Phe Leu Ser  Val Phe Phe
    1505                1510                1515

Ser Gly  Tyr Thr Phe Lys His  Lys Met Val Tyr Glu  Asp Thr Leu
    1520                1525                1530

Thr Leu  Phe Pro Phe Ser Gly  Glu Thr Val Phe Met  Ser Met Glu
    1535                1540                1545

Asn Pro  Gly Leu Trp Ile Leu  Gly Cys His Asn Ser  Asp Phe Arg
    1550                1555                1560

Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val Ser Ser  Cys Asp Lys
    1565                1570                1575

Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr Glu Asp  Ile Ser Ala
    1580                1585                1590

Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu Pro Arg  Ser Phe Ser
    1595                1600                1605

Gln Asn  Ser Arg His Pro Ser  Thr Arg Gln Lys Gln  Phe Asn Ala
    1610                1615                1620

Thr Thr  Ile Pro Glu Asn Asp  Ile Glu Lys Thr Asp  Pro Trp Phe
    1625                1630                1635
```

```
Ala His  Arg Thr Pro Met Pro  Lys Ile Gln Asn Val  Ser Ser Ser
    1640                1645                1650

Asp Leu  Leu Met Leu Leu Arg  Gln Ser Pro Thr Pro  His Gly Leu
    1655                1660                1665

Ser Leu  Ser Asp Leu Gln Glu  Ala Lys Tyr Glu Thr  Phe Ser Asp
    1670                1675                1680

Asp Pro  Ser Pro Gly Ala Ile  Asp Ser Asn Asn Ser  Leu Ser Glu
    1685                1690                1695

Met Thr  His Phe Arg Pro Gln  Leu His His Ser Gly  Asp Met Val
    1700                1705                1710

Phe Thr  Pro Glu Ser Gly Leu  Gln Leu Arg Leu Asn  Glu Lys Leu
    1715                1720                1725

Gly Thr  Thr Ala Ala Thr Glu  Leu Lys Lys Leu Asp  Phe Lys Val
    1730                1735                1740

Ser Ser  Thr Ser Asn Asn Leu  Ile Ser Thr Ile Pro  Ser Asp Asn
    1745                1750                1755

Leu Ala  Ala Gly Thr Asp Asn  Thr Ser Ser Leu Gly  Pro Pro Ser
    1760                1765                1770

Met Pro  Val His Tyr Asp Ser  Gln Leu Asp Thr Thr  Leu Phe Gly
    1775                1780                1785

Lys Lys  Ser Ser Pro Leu Thr  Glu Ser Gly Gly Pro  Leu Ser Leu
    1790                1795                1800

Ser Glu  Glu Asn Asn Asp Ser  Lys Leu Leu Glu Ser  Gly Leu Met
    1805                1810                1815

Asn Ser  Gln Glu Ser Ser Trp  Gly Lys Asn Val Ser  Ser Thr Glu
    1820                1825                1830

Ser Gly  Arg Leu Phe Lys Gly  Lys Arg Ala His Gly  Pro Ala Leu
    1835                1840                1845
```

```
Leu Thr  Lys Asp Asn Ala Leu  Phe Lys Val Ser Ile  Ser Leu Leu
    1850                1855                1860

Lys Thr  Asn Lys Thr Ser Asn  Asn Ser Ala Thr Asn  Arg Lys Thr
    1865                1870                1875

His Ile  Asp Gly Pro Ser Leu  Leu Ile Glu Asn Ser  Pro Ser Val
    1880                1885                1890

Trp Gln  Asn Ile Leu Glu Ser  Asp Thr Glu Phe Lys  Lys Val Thr
    1895                1900                1905

Pro Leu  Ile His Asp Arg Met  Leu Met Asp Lys Asn  Ala Thr Ala
    1910                1915                1920

Leu Arg  Leu Asn His Met Ser  Asn Lys Thr Thr Ser  Ser Lys Asn
    1925                1930                1935

Met Glu  Met Val Gln Gln Lys  Lys Glu Gly Pro Ile  Pro Pro Asp
    1940                1945                1950

Ala Gln  Asn Pro Asp Met Ser  Phe Phe Lys Met Leu  Phe Leu Pro
    1955                1960                1965

Glu Ser  Ala Arg Trp Ile Gln  Arg Thr His Gly Lys  Asn Ser Leu
    1970                1975                1980

Asn Ser  Gly Gln Gly Pro Ser  Pro Lys Gln Leu Val  Ser Leu Gly
    1985                1990                1995

Pro Glu  Lys Ser Val Glu Gly  Gln Asn Phe Leu Ser  Glu Lys Asn
    2000                2005                2010

Lys Val  Val Val Gly Lys Gly  Glu Phe Thr Lys Asp  Val Gly Leu
    2015                2020                2025

Lys Glu  Met Val Phe Pro Ser  Ser Arg Asn Leu Phe  Leu Thr Asn
    2030                2035                2040

Leu Asp  Asn Leu His Glu Asn  Asn Thr His Asn Gln  Glu Lys Lys
```

```
    2045                2050                2055

Ile Gln  Glu Glu Ile Glu Lys  Lys Glu Thr Leu Ile  Gln Glu Asn
    2060                2065                2070

Val Val  Leu Pro Gln Ile His  Thr Val Thr Gly Thr  Lys Asn Phe
    2075                2080                2085

Met Lys  Asn Leu Phe Leu Leu  Ser Thr Arg Gln Asn  Val Glu Gly
    2090                2095                2100

Ser Tyr  Asp Gly Ala Tyr Ala  Pro Val Leu Gln Asp  Phe Arg Ser
    2105                2110                2115

Leu Asn  Asp Ser Thr Asn Arg  Thr Lys Lys His Thr  Ala His Phe
    2120                2125                2130

Ser Lys  Lys Gly Glu Glu Glu  Asn Leu Glu Gly Leu  Gly Asn Gln
    2135                2140                2145

Thr Lys  Gln Ile Val Glu Lys  Tyr Ala Cys Thr Thr  Arg Ile Ser
    2150                2155                2160

Pro Asn  Thr Ser Gln Gln Asn  Phe Val Thr Gln Arg  Ser Lys Arg
    2165                2170                2175

Ala Leu  Lys Gln Phe Arg Leu  Pro Leu Glu Glu Thr  Glu Leu Glu
    2180                2185                2190

Lys Arg  Ile Ile Val Asp Asp  Thr Ser Thr Gln Trp  Ser Lys Asn
    2195                2200                2205

Met Lys  His Leu Thr Pro Ser  Thr Leu Thr Gln Ile  Asp Tyr Asn
    2210                2215                2220

Glu Lys  Glu Lys Gly Ala Ile  Thr Gln Ser Pro Leu  Ser Asp Cys
    2225                2230                2235

Leu Thr  Arg Ser His Ser Ile  Pro Gln Ala Asn Arg  Ser Pro Leu
    2240                2245                2250
```

```
Pro Ile  Ala Lys Val Ser Ser  Phe Pro Ser Ile Arg  Pro Ile Tyr
    2255                 2260                 2265

Leu Thr  Arg Val Leu Phe Gln  Asp Asn Ser Ser His  Leu Pro Ala
    2270                 2275                 2280

Ala Ser  Tyr Arg Lys Lys Asp  Ser Gly Val Gln Glu  Ser Ser His
    2285                 2290                 2295

Phe Leu  Gln Gly Ala Lys Lys  Asn Asn Leu Ser Leu  Ala Ile Leu
    2300                 2305                 2310

Thr Leu  Glu Met Thr Gly Asp  Gln Arg Glu Val Gly  Ser Leu Gly
    2315                 2320                 2325

Thr Ser  Ala Thr Asn Ser Val  Thr Tyr Lys Lys Val  Glu Asn Thr
    2330                 2335                 2340

Val Leu  Pro Lys Pro Asp Leu  Pro Lys Thr Ser Gly  Lys Val Glu
    2345                 2350                 2355

Leu Leu  Pro Lys Val His Ile  Tyr Gln Lys Asp Leu  Phe Pro Thr
    2360                 2365                 2370

Glu Thr  Ser Asn Gly Ser Pro  Gly His Leu Asp Leu  Val Glu Gly
    2375                 2380                 2385

Ser Leu  Leu Gln Gly Thr Glu  Gly Ala Ile Lys Trp  Asn Glu Ala
    2390                 2395                 2400

Asn Arg  Pro Gly Lys Val Pro  Phe Leu Arg Val Ala  Thr Glu Ser
    2405                 2410                 2415

Ser Ala  Lys Thr Pro Ser Lys  Leu Leu Asp Pro Leu  Ala Trp Asp
    2420                 2425                 2430

Asn His  Tyr Gly Thr Gln Ile  Pro Lys Glu Glu Trp  Lys Ser Gln
    2435                 2440                 2445

Glu Lys  Ser Pro Glu Lys Thr  Ala Phe Lys Lys Lys  Asp Thr Ile
    2450                 2455                 2460
```

```
Leu Ser  Leu Asn Ala Cys Glu  Ser Asn His Ala Ile  Ala Ala Ile
    2465                2470                2475

Asn Glu  Gly Gln Asn Lys Pro  Glu Ile Glu Val Thr  Trp Ala Lys
    2480                2485                2490

Gln Gly  Arg Thr Glu Arg Leu  Cys Ser Gln Asn Pro  Pro Val Leu
    2495                2500                2505

Lys Arg  His Gln Arg Glu Ile  Thr Arg Thr Thr Leu  Gln Ser Asp
    2510                2515                2520

Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile Ser Val  Glu Met Lys
    2525                2530                2535

Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp Glu Asn  Gln Ser Pro
    2540                2545                2550

Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr Phe Ile  Ala Ala Val
    2555                2560                2565

Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser Ser Pro  His Val Leu
    2570                2575                2580

Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro Gln Phe  Lys Lys Val
    2585                2590                2595

Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe Thr Gln  Pro Leu Tyr
    2600                2605                2610

Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu Leu Gly  Pro Tyr Ile
    2615                2620                2625

Arg Ala  Glu Val Glu Asp Asn  Ile Met Val Thr Phe  Arg Asn Gln
    2630                2635                2640

Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser Leu Ile  Ser Tyr Glu
    2645                2650                2655

Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg Lys Asn  Phe Val Lys
    2660                2665                2670
```

```
Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys Val Gln  His His Met
    2675                2680                2685

Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe
    2690                2695                2700

Ser Asp  Val Asp Leu Glu Lys  Asp Val His Ser Gly  Leu Ile Gly
    2705                2710                2715

Pro Leu  Leu Val Cys His Thr  Asn Thr Leu Asn Pro  Ala His Gly
    2720                2725                2730

Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
    2735                2740                2745

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    2750                2755                2760

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    2765                2770                2775

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    2780                2785                2790

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    2795                2800                2805

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    2810                2815                2820

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    2825                2830                2835

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
    2840                2845                2850

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    2855                2860                2865

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
```

```
    2870                2875                2880

Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
    2885                2890                2895

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    2900                2905                2910

Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    2915                2920                2925

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    2930                2935                2940

Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    2945                2950                2955

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    2960                2965                2970

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    2975                2980                2985

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    2990                2995                3000

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    3005                3010                3015

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    3020                3025                3030

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    3035                3040                3045

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    3050                3055                3060

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    3065                3070                3075
```

```
Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    3080                3085                3090

Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    3095                3100                3105

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    3110                3115                3120

Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    3125                3130                3135

Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
    3140                3145                3150

Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    3155                3160                3165

Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
    3170                3175                3180

Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr Gly
    3185                3190                3195

Leu Thr  Pro Arg Ser Leu Leu  Val Gly Gly Ser Glu  Pro Ala Thr
    3200                3205                3210

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    3215                3220                3225

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    3230                3235                3240

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    3245                3250                3255

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Glu  Pro Ala Thr
    3260                3265                3270

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    3275                3280                3285
```

Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
3290 3295 3300

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
3305 3310 3315

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
3320 3325 3330

Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
3335 3340 3345

Ser Ala Pro
3350

<210> 1569
<211> 1592
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1569
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

```
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320
```

```
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540
```

```
Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Gly Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
```

```
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975
```

```
Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185
```

```
Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395
```

```
Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Thr  Met Thr Arg
    1430                1435                1440

Ile Val  Gly Gly Gly Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1445                1450                1455

Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly
    1460                1465                1470

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Pro Ala
    1475                1480                1485

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    1490                1495                1500

Glu Gly  Ser Ala Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1505                1510                1515

Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1520                1525                1530

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Thr
    1535                1540                1545

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr
    1550                1555                1560

Pro Glu  Ser Gly Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1565                1570                1575

Thr Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro
    1580                1585                1590
```

<210> 1570

<211> 1584
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1570
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

```
His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
```

405 410 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
420 425 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
435 440 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
450 455 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465 470 475 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
485 490 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
500 505 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
515 520 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
530 535 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545 550 555 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
565 570 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
580 585 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
595 600 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
610 615 620

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Gly Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845
```

```
Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065
```

```
Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
```

```
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Gly  Gly Ser Glu
    1430                1435                1440

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1445                1450                1455

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1460                1465                1470
```

Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    1475   1480   1485

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
    1490   1495   1500

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr
    1505   1510   1515

Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
    1520   1525   1530

Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    1535   1540   1545

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu
    1550   1555   1560

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro
    1565   1570   1575

Ser Glu Gly Ser Ala Pro
    1580

<210> 1571
<211> 1591
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1571
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro

```
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
```

```
Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495
```

```
His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720
```

```
Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Gly Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
```

```
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140
```

```
Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350
```

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                 1360                 1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                 1375                 1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                 1390                 1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                 1405                 1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                 1420                 1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Lys  Leu Thr Arg
    1430                 1435                 1440

Ala Glu  Thr Gly Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1445                 1450                 1455

Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser
    1460                 1465                 1470

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Ser  Pro Ala Gly
    1475                 1480                 1485

Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu
    1490                 1495                 1500

Gly Ser  Ala Pro Gly Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr
    1505                 1510                 1515

Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Ser
    1520                 1525                 1530

Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro Gly Thr  Ser Thr Glu
    1535                 1540                 1545

Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser Glu Ser  Ala Thr Pro
    1550                 1555                 1560
```

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr
    1565   1570   1575

Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    1580   1585   1590

<210> 1572
<211> 1592
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1572
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

```
Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365
```

```
Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
```

```
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Gly Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800
```

```
Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020
```

```
Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230
```

```
Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
    1235                1240                1245

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Gly Leu  Thr Pro Arg
```

1430 1435 1440

Ser Leu Leu Val Gly Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
1445 1450 1455

Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
1460 1465 1470

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
1475 1480 1485

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
1490 1495 1500

Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
1505 1510 1515

Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
1520 1525 1530

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr
1535 1540 1545

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
1550 1555 1560

Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
1565 1570 1575

Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
1580 1585 1590

<210> 1573
<211> 2457
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1573
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
            20                  25                  30

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        35                  40                  45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    50                  55                  60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
65                  70                  75                  80

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                85                  90                  95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
            100                 105                 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        115                 120                 125

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp
145                 150                 155                 160

Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro
                165                 170                 175

Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys
            180                 185                 190

Lys Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys
        195                 200                 205

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

Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro
```

225 230 235 240

Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly
245 250 255

Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys
260 265 270

Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu
275 280 285

Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu
290 295 300

Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala
305 310 315 320

Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr
325 330 335

Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser
340 345 350

Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala
355 360 365

Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn
370 375 380

Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp
385 390 395 400

His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu
405 410 415

Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu
420 425 430

Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu
435 440 445

```
Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly
    450                 455                 460

Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu
465                 470                 475                 480

Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr
                485                 490                 495

Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser
            500                 505                 510

Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val
        515                 520                 525

His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val
    530                 535                 540

Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly
545                 550                 555                 560

Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr
                565                 570                 575

Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly
            580                 585                 590

Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile
        595                 600                 605

Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly
    610                 615                 620

Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val
625                 630                 635                 640

Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr
                645                 650                 655

Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg
            660                 665                 670
```

```
Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu
        675                 680                 685

Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val
    690                 695                 700

Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu
705                 710                 715                 720

Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile
                725                 730                 735

Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu
            740                 745                 750

Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp
        755                 760                 765

Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile
    770                 775                 780

Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly
785                 790                 795                 800

Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe
                805                 810                 815

Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu
            820                 825                 830

Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr
        835                 840                 845

Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr
    850                 855                 860

Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn
865                 870                 875                 880

Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg
                885                 890                 895
```

```
His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu
            900                 905                 910

Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
        915                 920                 925

Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys
    930                 935                 940

Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr
945                 950                 955                 960

Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly
                965                 970                 975

Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly
            980                 985                 990

Ser Phe Thr Gln Pro Leu Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly
        995                 1000                1005

Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val Glu Asp  Asn Ile Met
    1010                1015                1020

Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser
    1025                1030                1035

Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg Gln Gly  Ala Glu Pro
    1040                1045                1050

Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr Lys Thr  Tyr Phe Trp
    1055                1060                1065

Lys Val  Gln His His Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys
    1070                1075                1080

Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val
    1085                1090                1095

His Ser  Gly Leu Ile Gly Pro  Leu Leu Val Cys His  Thr Asn Thr
```

```
    1100                1105                1110

Leu Asn  Pro Ala His Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala
    1115                1120                1125

Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr
    1130                1135                1140

Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met
    1145                1150                1155

Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn
    1160                1165                1170

Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp
    1175                1180                1185

Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn
    1190                1195                1200

Ile His  Ser Ile His Phe Ser  Gly His Val Phe Thr  Val Arg Lys
    1205                1210                1215

Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val
    1220                1225                1230

Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg
    1235                1240                1245

Val Glu  Cys Leu Ile Gly Glu  His Leu His Ala Gly  Met Ser Thr
    1250                1255                1260

Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met
    1265                1270                1275

Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln
    1280                1285                1290

Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly
    1295                1300                1305
```

```
Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys
    1310                1315                1320

Val Asp  Leu Leu Ala Pro Met  Ile Ile His Gly Ile  Lys Thr Gln
    1325                1330                1335

Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile
    1340                1345                1350

Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly
    1355                1360                1365

Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe Gly Asn  Val Asp Ser
    1370                1375                1380

Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg
    1385                1390                1395

Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu
    1400                1405                1410

Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro
    1415                1420                1425

Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala
    1430                1435                1440

Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys
    1445                1450                1455

Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln
    1460                1465                1470

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

Met Lys  Val Thr Gly Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu
    1490                1495                1500

Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp
    1505                1510                1515
```

```
Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val
    1520                1525                1530

Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu
    1535                1540                1545

Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser
    1550                1555                1560

Trp Val  His Gln Ile Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu
    1565                1570                1575

Ala Gln  Asp Leu Tyr Gly Ala  Pro Leu Gly Leu Arg  Leu Arg Gly
    1580                1585                1590

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1595                1600                1605

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1610                1615                1620

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1625                1630                1635

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1640                1645                1650

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1655                1660                1665

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1670                1675                1680

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1685                1690                1695

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1700                1705                1710

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1715                1720                1725
```

```
Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1730                1735                1740

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1745                1750                1755

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1760                1765                1770

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1775                1780                1785

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1790                1795                1800

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1805                1810                1815

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1820                1825                1830

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1835                1840                1845

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1850                1855                1860

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1865                1870                1875

Ser Gly  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1880                1885                1890

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1895                1900                1905

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1910                1915                1920

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
```

```
    1925                1930                1935

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1940                1945                1950

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1955                1960                1965

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1970                1975                1980

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1985                1990                1995

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2000                2005                2010

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    2015                2020                2025

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    2030                2035                2040

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2045                2050                2055

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    2060                2065                2070

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    2075                2080                2085

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    2090                2095                2100

Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    2105                2110                2115

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2120                2125                2130
```

```
Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    2135                2140                2145

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    2150                2155                2160

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2165                2170                2175

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    2180                2185                2190

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    2195                2200                2205

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    2210                2215                2220

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    2225                2230                2235

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2240                2245                2250

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    2255                2260                2265

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    2270                2275                2280

Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    2285                2290                2295

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2300                2305                2310

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    2315                2320                2325

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala
    2330                2335                2340
```

Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
    2345   2350   2355

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    2360   2365   2370

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
    2375   2380   2385

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
    2390   2395   2400

Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    2405   2410   2415

Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    2420   2425   2430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
    2435   2440   2445

Thr Glu Pro Ser Glu Gly Ser Ala Pro
    2450   2455

<210> 1574
<211> 2457
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1574
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1   5   10   15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
            20   25   30

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        35   40   45

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    50                  55                  60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
65                  70                  75                  80

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                85                  90                  95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
            100                 105                 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        115                 120                 125

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp
145                 150                 155                 160

Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro
                165                 170                 175

Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys
            180                 185                 190

Lys Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys
        195                 200                 205

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

Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro
225                 230                 235                 240

Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly
                245                 250                 255

Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys
            260                 265                 270
```

```
Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu
        275                 280                 285

Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu
    290                 295                 300

Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala
305                 310                 315                 320

Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr
                325                 330                 335

Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser
            340                 345                 350

Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala
        355                 360                 365

Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn
    370                 375                 380

Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp
385                 390                 395                 400

His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu
                405                 410                 415

Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu
            420                 425                 430

Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu
        435                 440                 445

Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly
    450                 455                 460

Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu
465                 470                 475                 480

Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr
                485                 490                 495
```

```
Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser
            500                 505                 510

Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val
        515                 520                 525

His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val
    530                 535                 540

Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly
545                 550                 555                 560

Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr
                565                 570                 575

Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly
            580                 585                 590

Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile
        595                 600                 605

Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly
    610                 615                 620

Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val
625                 630                 635                 640

Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr
                645                 650                 655

Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg
            660                 665                 670

Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu
        675                 680                 685

Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val
    690                 695                 700

Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu
```

```
705                 710                 715                 720

Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile
                725                 730                 735

Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu
            740                 745                 750

Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp
        755                 760                 765

Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile
    770                 775                 780

Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly
785                 790                 795                 800

Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe
                805                 810                 815

Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu
            820                 825                 830

Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr
        835                 840                 845

Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr
    850                 855                 860

Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn
865                 870                 875                 880

Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg
                885                 890                 895

His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu
            900                 905                 910

Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
        915                 920                 925
```

```
Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys
    930                 935                 940

Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr
945                 950                 955                 960

Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly
                965                 970                 975

Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly
            980                 985                 990

Ser Phe Thr Gln Pro Leu Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly
        995                 1000                1005

Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val Glu Asp  Asn Ile Met
    1010                1015                1020

Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser
    1025                1030                1035

Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg Gln Gly  Ala Glu Pro
    1040                1045                1050

Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr Lys Thr  Tyr Phe Trp
    1055                1060                1065

Lys Val  Gln His His Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys
    1070                1075                1080

Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val
    1085                1090                1095

His Ser  Gly Leu Ile Gly Pro  Leu Leu Val Cys His  Thr Asn Thr
    1100                1105                1110

Leu Asn  Pro Ala His Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala
    1115                1120                1125

Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr
    1130                1135                1140
```

```
Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met
    1145                1150                1155

Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn
    1160                1165                1170

Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp
    1175                1180                1185

Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn
    1190                1195                1200

Ile His  Ser Ile His Phe Ser  Gly His Val Phe Thr  Val Arg Lys
    1205                1210                1215

Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val
    1220                1225                1230

Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg
    1235                1240                1245

Val Glu  Cys Leu Ile Gly Glu  His Leu His Ala Gly  Met Ser Thr
    1250                1255                1260

Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met
    1265                1270                1275

Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln
    1280                1285                1290

Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly
    1295                1300                1305

Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys
    1310                1315                1320

Val Asp  Leu Leu Ala Pro Met  Ile Ile His Gly Ile  Lys Thr Gln
    1325                1330                1335

Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile
    1340                1345                1350
```

```
Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly
    1355                 1360                 1365

Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe Gly Asn  Val Asp Ser
    1370                 1375                 1380

Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg
    1385                 1390                 1395

Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu
    1400                 1405                 1410

Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro
    1415                 1420                 1425

Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala
    1430                 1435                 1440

Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys
    1445                 1450                 1455

Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln
    1460                 1465                 1470

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

Met Lys  Val Thr Gly Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu
    1490                 1495                 1500

Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp
    1505                 1510                 1515

Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val
    1520                 1525                 1530

Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu
    1535                 1540                 1545

Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser
```

```
    1550                1555                1560

Trp Val  His Gln Ile Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu
    1565                1570                1575

Ala Gln  Asp Leu Tyr Gly Thr  Met Thr Arg Ile Val  Gly Gly Gly
    1580                1585                1590

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1595                1600                1605

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1610                1615                1620

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1625                1630                1635

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1640                1645                1650

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1655                1660                1665

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1670                1675                1680

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1685                1690                1695

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1700                1705                1710

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1715                1720                1725

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1730                1735                1740

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1745                1750                1755
```

```
Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1760                1765                1770

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1775                1780                1785

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1790                1795                1800

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1805                1810                1815

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1820                1825                1830

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1835                1840                1845

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1850                1855                1860

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1865                1870                1875

Ser Gly  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1880                1885                1890

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1895                1900                1905

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1910                1915                1920

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1925                1930                1935

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1940                1945                1950

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1955                1960                1965
```

```
Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1970                1975                1980

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1985                1990                1995

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2000                2005                2010

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    2015                2020                2025

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    2030                2035                2040

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2045                2050                2055

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    2060                2065                2070

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    2075                2080                2085

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    2090                2095                2100

Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    2105                2110                2115

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2120                2125                2130

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    2135                2140                2145

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    2150                2155                2160

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2165                2170                2175
```

```
Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    2180                2185                2190

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    2195                2200                2205

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    2210                2215                2220

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    2225                2230                2235

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2240                2245                2250

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    2255                2260                2265

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    2270                2275                2280

Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    2285                2290                2295

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2300                2305                2310

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    2315                2320                2325

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala
    2330                2335                2340

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2345                2350                2355

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    2360                2365                2370

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro
```

```
    2375                2380                2385

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro
    2390                2395                2400

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    2405                2410                2415

Ser Ala  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    2420                2425                2430

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    2435                2440                2445

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro
    2450                2455
```

<210> 1575
<211> 2168
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1575

```
Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
1               5                   10                  15

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            20                  25                  30

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr
        35                  40                  45

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    50                  55                  60

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
65                  70                  75                  80

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly
                85                  90                  95
```

```
Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
            100                 105                 110

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
        115                 120                 125

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
    130                 135                 140

Gly Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp
145                 150                 155                 160

Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro
                165                 170                 175

Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys
            180                 185                 190

Lys Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys
        195                 200                 205

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

Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro
225                 230                 235                 240

Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly
                245                 250                 255

Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys
            260                 265                 270

Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu
        275                 280                 285

Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu
    290                 295                 300

Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala
```

```
305                 310                 315                 320

Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr
                325                 330                 335

Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser
            340                 345                 350

Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala
        355                 360                 365

Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn
    370                 375                 380

Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp
385                 390                 395                 400

His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu
                405                 410                 415

Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu
            420                 425                 430

Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu
        435                 440                 445

Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly
    450                 455                 460

Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu
465                 470                 475                 480

Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr
                485                 490                 495

Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser
            500                 505                 510

Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val
        515                 520                 525
```

```
His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val
    530                 535                 540

Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly
545                 550                 555                 560

Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr
                565                 570                 575

Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly
            580                 585                 590

Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile
        595                 600                 605

Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly
    610                 615                 620

Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val
625                 630                 635                 640

Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr
                645                 650                 655

Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg
            660                 665                 670

Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu
        675                 680                 685

Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val
    690                 695                 700

Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu
705                 710                 715                 720

Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile
                725                 730                 735

Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu
            740                 745                 750
```

```
Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp
        755                 760                 765

Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile
    770                 775                 780

Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly
785                 790                 795                 800

Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe
                805                 810                 815

Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu
            820                 825                 830

Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr
        835                 840                 845

Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr
    850                 855                 860

Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn
865                 870                 875                 880

Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg
                885                 890                 895

His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu
            900                 905                 910

Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
        915                 920                 925

Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys
    930                 935                 940

Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr
945                 950                 955                 960

Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly
                965                 970                 975
```

```
Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly
            980                 985                 990

Ser Phe Thr Gln Pro Leu Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly
        995                 1000                1005

Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val Glu Asp  Asn Ile Met
    1010                1015                1020

Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser
    1025                1030                1035

Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg Gln Gly  Ala Glu Pro
    1040                1045                1050

Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr Lys Thr  Tyr Phe Trp
    1055                1060                1065

Lys Val  Gln His His Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys
    1070                1075                1080

Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val
    1085                1090                1095

His Ser  Gly Leu Ile Gly Pro  Leu Leu Val Cys His  Thr Asn Thr
    1100                1105                1110

Leu Asn  Pro Ala His Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala
    1115                1120                1125

Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr
    1130                1135                1140

Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met
    1145                1150                1155

Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn
    1160                1165                1170

Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp
```

```
    1175                1180                1185

Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn
    1190                1195                1200

Ile His  Ser Ile His Phe Ser  Gly His Val Phe Thr  Val Arg Lys
    1205                1210                1215

Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val
    1220                1225                1230

Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg
    1235                1240                1245

Val Glu  Cys Leu Ile Gly Glu  His Leu His Ala Gly  Met Ser Thr
    1250                1255                1260

Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met
    1265                1270                1275

Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln
    1280                1285                1290

Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly
    1295                1300                1305

Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys
    1310                1315                1320

Val Asp  Leu Leu Ala Pro Met  Ile Ile His Gly Ile  Lys Thr Gln
    1325                1330                1335

Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile
    1340                1345                1350

Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly
    1355                1360                1365

Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe Gly Asn  Val Asp Ser
    1370                1375                1380
```

```
Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg
    1385                1390                1395

Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu
    1400                1405                1410

Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro
    1415                1420                1425

Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala
    1430                1435                1440

Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys
    1445                1450                1455

Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln
    1460                1465                1470

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

Met Lys  Val Thr Gly Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu
    1490                1495                1500

Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp
    1505                1510                1515

Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val
    1520                1525                1530

Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu
    1535                1540                1545

Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser
    1550                1555                1560

Trp Val  His Gln Ile Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu
    1565                1570                1575

Ala Gln  Asp Leu Tyr Gly Lys  Leu Thr Arg Ala Glu  Thr Gly Pro
    1580                1585                1590
```

```
Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser
    1595                 1600                 1605

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1610                 1615                 1620

Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
    1625                 1630                 1635

Thr Gly  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1640                 1645                 1650

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ala Ser
    1655                 1660                 1665

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1670                 1675                 1680

Ser Ser  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1685                 1690                 1695

Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1700                 1705                 1710

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1715                 1720                 1725

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1730                 1735                 1740

Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
    1745                 1750                 1755

Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1760                 1765                 1770

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1775                 1780                 1785

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1790                 1795                 1800
```

```
Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1805                 1810                 1815

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1820                 1825                 1830

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro
    1835                 1840                 1845

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser
    1850                 1855                 1860

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1865                 1870                 1875

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1880                 1885                 1890

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser
    1895                 1900                 1905

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1910                 1915                 1920

Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1925                 1930                 1935

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1940                 1945                 1950

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1955                 1960                 1965

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1970                 1975                 1980

Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1985                 1990                 1995

Ser Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
```

2000 2005 2010

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
2015 2020 2025

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
2030 2035 2040

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
2045 2050 2055

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
2060 2065 2070

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
2075 2080 2085

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
2090 2095 2100

Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
2105 2110 2115

Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
2120 2125 2130

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
2135 2140 2145

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr
2150 2155 2160

Ser Ser Thr Gly Ser
2165

<210> 1576
<211> 2456
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1576
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1   5   10   15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
            20   25   30

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        35   40   45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    50   55   60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
65   70   75   80

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                85   90   95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
            100   105   110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        115   120   125

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130   135   140

Gly Lys Leu Thr Arg Ala Glu Thr Gly Ala Thr Arg Arg Tyr Tyr Leu
145   150   155   160

Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu
                165   170   175

Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro
            180   185   190

Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr
        195   200   205

Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu

```
    210                 215                 220

Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr
225                 230                 235                 240

Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val
                245                 250                 255

Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser
            260                 265                 270

Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr
        275                 280                 285

Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro
    290                 295                 300

Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp
305                 310                 315                 320

Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser
                325                 330                 335

Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe
            340                 345                 350

Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser
        355                 360                 365

Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met
    370                 375                 380

His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly
385                 390                 395                 400

Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr
                405                 410                 415

Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg
            420                 425                 430
```

```
Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr
        435                 440                 445

Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His
    450                 455                 460

Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp
465                 470                 475                 480

Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala
                485                 490                 495

Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg
            500                 505                 510

Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala
        515                 520                 525

Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu
    530                 535                 540

Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr
545                 550                 555                 560

Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr
                565                 570                 575

Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg
            580                 585                 590

Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly
        595                 600                 605

Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg
    610                 615                 620

Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr
625                 630                 635                 640

Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile
                645                 650                 655
```

```
Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp
            660                 665                 670

Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser
        675                 680                 685

Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu
    690                 695                 700

Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met
705                 710                 715                 720

Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg
                725                 730                 735

Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala
            740                 745                 750

Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His
        755                 760                 765

Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu
    770                 775                 780

His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp
785                 790                 795                 800

Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val
                805                 810                 815

Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe
            820                 825                 830

Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser
        835                 840                 845

Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys
    850                 855                 860

Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser
865                 870                 875                 880
```

```
Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser
                885                 890                 895

Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr
            900                 905                 910

Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
        915                 920                 925

Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
    930                 935                 940

Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
945                 950                 955                 960

Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
                965                 970                 975

Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
            980                 985                 990

Val Phe Gln Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
        995                 1000                1005

Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1010                1015                1020

Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1025                1030                1035

Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1040                1045                1050

Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1055                1060                1065

Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1070                1075                1080

Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
```

```
    1085                1090                1095

Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1100                1105                1110

Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1115                1120                1125

Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1130                1135                1140

Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1145                1150                1155

Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1160                1165                1170

Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1175                1180                1185

Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1190                1195                1200

Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1205                1210                1215

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1220                1225                1230

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1235                1240                1245

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1250                1255                1260

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1265                1270                1275

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1280                1285                1290
```

```
Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1295                 1300                 1305

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1310                 1315                 1320

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1325                 1330                 1335

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1340                 1345                 1350

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1355                 1360                 1365

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1370                 1375                 1380

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1385                 1390                 1395

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1400                 1405                 1410

His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1415                 1420                 1425

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1430                 1435                 1440

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1445                 1450                 1455

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1460                 1465                 1470

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1475                 1480                 1485

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1490                 1495                 1500
```

```
Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1505                1510                1515

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1520                1525                1530

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1535                1540                1545

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1550                1555                1560

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1565                1570                1575

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Gly
    1580                1585                1590

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu
    1595                1600                1605

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    1610                1615                1620

Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1625                1630                1635

Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1640                1645                1650

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    1655                1660                1665

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    1670                1675                1680

Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    1685                1690                1695

Thr Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1700                1705                1710
```

```
Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    1715                 1720                 1725

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    1730                 1735                 1740

Glu Gly  Ser Ala Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    1745                 1750                 1755

Glu Glu  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1760                 1765                 1770

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    1775                 1780                 1785

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    1790                 1795                 1800

Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1805                 1810                 1815

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1820                 1825                 1830

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    1835                 1840                 1845

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr
    1850                 1855                 1860

Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1865                 1870                 1875

Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1880                 1885                 1890

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1895                 1900                 1905

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
```

1910 1915 1920

Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
1925 1930 1935

Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
1940 1945 1950

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
1955 1960 1965

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
1970 1975 1980

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
1985 1990 1995

Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
2000 2005 2010

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
2015 2020 2025

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
2030 2035 2040

Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
2045 2050 2055

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
2060 2065 2070

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
2075 2080 2085

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr
2090 2095 2100

Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
2105 2110 2115

```
Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2120                2125                2130

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu
    2135                2140                2145

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    2150                2155                2160

Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2165                2170                2175

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2180                2185                2190

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    2195                2200                2205

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    2210                2215                2220

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2225                2230                2235

Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2240                2245                2250

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    2255                2260                2265

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    2270                2275                2280

Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2285                2290                2295

Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2300                2305                2310

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    2315                2320                2325
```

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr
2330 2335 2340

Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
2345 2350 2355

Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
2360 2365 2370

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
2375 2380 2385

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser
2390 2395 2400

Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
2405 2410 2415

Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
2420 2425 2430

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
2435 2440 2445

Glu Pro Ser Glu Gly Ser Ala Pro
2450 2455

<210> 1577
<211> 2457
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1577
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
20 25 30

```
Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        35                  40                  45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    50                  55                  60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
65                  70                  75                  80

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                85                  90                  95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
            100                 105                 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        115                 120                 125

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp
145                 150                 155                 160

Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro
                165                 170                 175

Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys
            180                 185                 190

Lys Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys
        195                 200                 205

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

Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro
225                 230                 235                 240

Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly
                245                 250                 255
```

```
Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys
            260                 265                 270

Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu
        275                 280                 285

Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu
    290                 295                 300

Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala
305                 310                 315                 320

Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr
                325                 330                 335

Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser
            340                 345                 350

Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala
        355                 360                 365

Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn
    370                 375                 380

Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp
385                 390                 395                 400

His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu
                405                 410                 415

Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu
            420                 425                 430

Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu
        435                 440                 445

Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly
    450                 455                 460

Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu
465                 470                 475                 480
```

```
Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr
                485                 490                 495

Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser
            500                 505                 510

Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val
        515                 520                 525

His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val
    530                 535                 540

Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly
545                 550                 555                 560

Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr
                565                 570                 575

Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly
            580                 585                 590

Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile
        595                 600                 605

Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly
    610                 615                 620

Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val
625                 630                 635                 640

Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr
                645                 650                 655

Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg
            660                 665                 670

Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu
        675                 680                 685

Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val
```

690 695 700

Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu
705 710 715 720

Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile
725 730 735

Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu
740 745 750

Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp
755 760 765

Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile
770 775 780

Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly
785 790 795 800

Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe
805 810 815

Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu
820 825 830

Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr
835 840 845

Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr
850 855 860

Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn
865 870 875 880

Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg
885 890 895

His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu
900 905 910

```
Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe
        915                 920                 925

Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys
    930                 935                 940

Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr
945                 950                 955                 960

Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly
                965                 970                 975

Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly
            980                 985                 990

Ser Phe Thr Gln Pro Leu Tyr Arg  Gly Glu Leu Asn Glu  His Leu Gly
        995                 1000                1005

Leu Leu  Gly Pro Tyr Ile Arg  Ala Glu Val Glu Asp  Asn Ile Met
    1010                1015                1020

Val Thr  Phe Arg Asn Gln Ala  Ser Arg Pro Tyr Ser  Phe Tyr Ser
    1025                1030                1035

Ser Leu  Ile Ser Tyr Glu Glu  Asp Gln Arg Gln Gly  Ala Glu Pro
    1040                1045                1050

Arg Lys  Asn Phe Val Lys Pro  Asn Glu Thr Lys Thr  Tyr Phe Trp
    1055                1060                1065

Lys Val  Gln His His Met Ala  Pro Thr Lys Asp Glu  Phe Asp Cys
    1070                1075                1080

Lys Ala  Trp Ala Tyr Phe Ser  Asp Val Asp Leu Glu  Lys Asp Val
    1085                1090                1095

His Ser  Gly Leu Ile Gly Pro  Leu Leu Val Cys His  Thr Asn Thr
    1100                1105                1110

Leu Asn  Pro Ala His Gly Arg  Gln Val Thr Val Gln  Glu Phe Ala
    1115                1120                1125
```

```
Leu Phe  Phe Thr Ile Phe Asp  Glu Thr Lys Ser Trp  Tyr Phe Thr
    1130                1135                1140

Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro Cys Asn  Ile Gln Met
    1145                1150                1155

Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg Phe His  Ala Ile Asn
    1160                1165                1170

Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu Val Met  Ala Gln Asp
    1175                1180                1185

Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met Gly Ser  Asn Glu Asn
    1190                1195                1200

Ile His  Ser Ile His Phe Ser  Gly His Val Phe Thr  Val Arg Lys
    1205                1210                1215

Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn Leu Tyr  Pro Gly Val
    1220                1225                1230

Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys Ala Gly  Ile Trp Arg
    1235                1240                1245

Val Glu  Cys Leu Ile Gly Glu  His Leu His Ala Gly  Met Ser Thr
    1250                1255                1260

Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln Thr Pro  Leu Gly Met
    1265                1270                1275

Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile Thr Ala  Ser Gly Gln
    1280                1285                1290

Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg Leu His  Tyr Ser Gly
    1295                1300                1305

Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro Phe Ser  Trp Ile Lys
    1310                1315                1320

Val Asp  Leu Leu Ala Pro Met  Ile Ile His Gly Ile  Lys Thr Gln
    1325                1330                1335
```

```
Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr Ile Ser  Gln Phe Ile
    1340                1345                1350

Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp Gln Thr  Tyr Arg Gly
    1355                1360                1365

Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe Gly Asn  Val Asp Ser
    1370                1375                1380

Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro Pro Ile  Ile Ala Arg
    1385                1390                1395

Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser Ile Arg  Ser Thr Leu
    1400                1405                1410

Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn Ser Cys  Ser Met Pro
    1415                1420                1425

Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp Ala Gln  Ile Thr Ala
    1430                1435                1440

Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr Trp Ser  Pro Ser Lys
    1445                1450                1455

Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn Ala Trp  Arg Pro Gln
    1460                1465                1470

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

Met Lys  Val Thr Gly Val Thr  Thr Gln Gly Val Lys  Ser Leu Leu
    1490                1495                1500

Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile Ser Ser  Ser Gln Asp
    1505                1510                1515

Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn Gly Lys  Val Lys Val
    1520                1525                1530

Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro Val Val  Asn Ser Leu
```

```
    1535                1540                1545

Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg Ile His  Pro Gln Ser
    1550                1555                1560

Trp Val  His Gln Ile Ala Leu  Arg Met Glu Val Leu  Gly Cys Glu
    1565                1570                1575

Ala Gln  Asp Leu Tyr Gly Leu  Thr Pro Arg Ser Leu  Leu Val Gly
    1580                1585                1590

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1595                1600                1605

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1610                1615                1620

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1625                1630                1635

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1640                1645                1650

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1655                1660                1665

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    1670                1675                1680

Ser Gly  Ser Glu Thr Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1685                1690                1695

Glu Thr  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1700                1705                1710

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1715                1720                1725

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1730                1735                1740
```

```
Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1745                1750                1755

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1760                1765                1770

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1775                1780                1785

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1790                1795                1800

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1805                1810                1815

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1820                1825                1830

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1835                1840                1845

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1850                1855                1860

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1865                1870                1875

Ser Gly  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1880                1885                1890

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1895                1900                1905

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1910                1915                1920

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1925                1930                1935

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1940                1945                1950
```

```
Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1955                 1960                 1965

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1970                 1975                 1980

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1985                 1990                 1995

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2000                 2005                 2010

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    2015                 2020                 2025

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Glu  Pro Ala Thr
    2030                 2035                 2040

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2045                 2050                 2055

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    2060                 2065                 2070

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    2075                 2080                 2085

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    2090                 2095                 2100

Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    2105                 2110                 2115

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2120                 2125                 2130

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    2135                 2140                 2145

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    2150                 2155                 2160
```

```
Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2165                 2170                 2175

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    2180                 2185                 2190

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    2195                 2200                 2205

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    2210                 2215                 2220

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    2225                 2230                 2235

Ser Ala  Pro Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2240                 2245                 2250

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    2255                 2260                 2265

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    2270                 2275                 2280

Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    2285                 2290                 2295

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    2300                 2305                 2310

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    2315                 2320                 2325

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala
    2330                 2335                 2340

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2345                 2350                 2355

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
```

2360 2365 2370

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro
2375 2380 2385

Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro
2390 2395 2400

Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
2405 2410 2415

Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
2420 2425 2430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser
2435 2440 2445

Thr Glu Pro Ser Glu Gly Ser Ala Pro
2450 2455

<210> 1578
<211> 3351
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1578
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

```
Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                85                  90                  95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
            100                 105                 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145                 150                 155                 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
```

```
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510
```

```
Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545                 550                 555                 560

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            580                 585                 590

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    610                 615                 620

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                645                 650                 655

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        675                 680                 685

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    690                 695                 700

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
                725                 730                 735
```

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
    770                 775                 780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                805                 810                 815

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            820                 825                 830

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    850                 855                 860

Gly Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp
865                 870                 875                 880

Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro
                885                 890                 895

Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys
            900                 905                 910

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

Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu
    930                 935                 940

Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro
945                 950                 955                 960
```

```
Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly
               965                 970                 975

Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys
            980                 985                 990

Val Phe Pro Gly Gly Ser His Thr  Tyr Val Trp Gln Val  Leu Lys Glu
        995                 1000                1005

Asn Gly  Pro Met Ala Ser Asp  Pro Leu Cys Leu Thr  Tyr Ser Tyr
    1010                1015                1020

Leu Ser  His Val Asp Leu Val  Lys Asp Leu Asn Ser  Gly Leu Ile
    1025                1030                1035

Gly Ala  Leu Leu Val Cys Arg  Glu Gly Ser Leu Ala  Lys Glu Lys
    1040                1045                1050

Thr Gln  Thr Leu His Lys Phe  Ile Leu Leu Phe Ala  Val Phe Asp
    1055                1060                1065

Glu Gly  Lys Ser Trp His Ser  Glu Thr Lys Asn Ser  Leu Met Gln
    1070                1075                1080

Asp Arg  Asp Ala Ala Ser Ala  Arg Ala Trp Pro Lys  Met His Thr
    1085                1090                1095

Val Asn  Gly Tyr Val Asn Arg  Ser Leu Pro Gly Leu  Ile Gly Cys
    1100                1105                1110

His Arg  Lys Ser Val Tyr Trp  His Val Ile Gly Met  Gly Thr Thr
    1115                1120                1125

Pro Glu  Val His Ser Ile Phe  Leu Glu Gly His Thr  Phe Leu Val
    1130                1135                1140

Arg Asn  His Arg Gln Ala Ser  Leu Glu Ile Ser Pro  Ile Thr Phe
    1145                1150                1155

Leu Thr  Ala Gln Thr Leu Leu  Met Asp Leu Gly Gln  Phe Leu Leu
```

```
    1160                1165                1170

Phe Cys  His Ile Ser Ser His  Gln His Asp Gly Met  Glu Ala Tyr
    1175                1180                1185

Val Lys  Val Asp Ser Cys Pro  Glu Glu Pro Gln Leu  Arg Met Lys
    1190                1195                1200

Asn Asn  Glu Glu Ala Glu Asp  Tyr Asp Asp Asp Leu  Thr Asp Ser
    1205                1210                1215

Glu Met  Asp Val Val Arg Phe  Asp Asp Asp Asn Ser  Pro Ser Phe
    1220                1225                1230

Ile Gln  Ile Arg Ser Val Ala  Lys Lys His Pro Lys  Thr Trp Val
    1235                1240                1245

His Tyr  Ile Ala Ala Glu Glu  Glu Asp Trp Asp Tyr  Ala Pro Leu
    1250                1255                1260

Val Leu  Ala Pro Asp Asp Arg  Ser Tyr Lys Ser Gln  Tyr Leu Asn
    1265                1270                1275

Asn Gly  Pro Gln Arg Ile Gly  Arg Lys Tyr Lys Lys  Val Arg Phe
    1280                1285                1290

Met Ala  Tyr Thr Asp Glu Thr  Phe Lys Thr Arg Glu  Ala Ile Gln
    1295                1300                1305

His Glu  Ser Gly Ile Leu Gly  Pro Leu Leu Tyr Gly  Glu Val Gly
    1310                1315                1320

Asp Thr  Leu Leu Ile Ile Phe  Lys Asn Gln Ala Ser  Arg Pro Tyr
    1325                1330                1335

Asn Ile  Tyr Pro His Gly Ile  Thr Asp Val Arg Pro  Leu Tyr Ser
    1340                1345                1350

Arg Arg  Leu Pro Lys Gly Val  Lys His Leu Lys Asp  Phe Pro Ile
    1355                1360                1365
```

```
Leu Pro  Gly Glu Ile Phe Lys  Tyr Lys Trp Thr Val  Thr Val Glu
    1370                1375                1380

Asp Gly  Pro Thr Lys Ser Asp  Pro Arg Cys Leu Thr  Arg Tyr Tyr
    1385                1390                1395

Ser Ser  Phe Val Asn Met Glu  Arg Asp Leu Ala Ser  Gly Leu Ile
    1400                1405                1410

Gly Pro  Leu Leu Ile Cys Tyr  Lys Glu Ser Val Asp  Gln Arg Gly
    1415                1420                1425

Asn Gln  Ile Met Ser Asp Lys  Arg Asn Val Ile Leu  Phe Ser Val
    1430                1435                1440

Phe Asp  Glu Asn Arg Ser Trp  Tyr Leu Thr Glu Asn  Ile Gln Arg
    1445                1450                1455

Phe Leu  Pro Asn Pro Ala Gly  Val Gln Leu Glu Asp  Pro Glu Phe
    1460                1465                1470

Gln Ala  Ser Asn Ile Met His  Ser Ile Asn Gly Tyr  Val Phe Asp
    1475                1480                1485

Ser Leu  Gln Leu Ser Val Cys  Leu His Glu Val Ala  Tyr Trp Tyr
    1490                1495                1500

Ile Leu  Ser Ile Gly Ala Gln  Thr Asp Phe Leu Ser  Val Phe Phe
    1505                1510                1515

Ser Gly  Tyr Thr Phe Lys His  Lys Met Val Tyr Glu  Asp Thr Leu
    1520                1525                1530

Thr Leu  Phe Pro Phe Ser Gly  Glu Thr Val Phe Met  Ser Met Glu
    1535                1540                1545

Asn Pro  Gly Leu Trp Ile Leu  Gly Cys His Asn Ser  Asp Phe Arg
    1550                1555                1560

Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val Ser Ser  Cys Asp Lys
    1565                1570                1575
```

```
Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr Glu Asp  Ile Ser Ala
    1580                1585                1590

Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu Pro Arg  Ser Phe Ser
    1595                1600                1605

Gln Asn  Ser Arg His Pro Ser  Thr Arg Gln Lys Gln  Phe Asn Ala
    1610                1615                1620

Thr Thr  Ile Pro Glu Asn Asp  Ile Glu Lys Thr Asp  Pro Trp Phe
    1625                1630                1635

Ala His  Arg Thr Pro Met Pro  Lys Ile Gln Asn Val  Ser Ser Ser
    1640                1645                1650

Asp Leu  Leu Met Leu Leu Arg  Gln Ser Pro Thr Pro  His Gly Leu
    1655                1660                1665

Ser Leu  Ser Asp Leu Gln Glu  Ala Lys Tyr Glu Thr  Phe Ser Asp
    1670                1675                1680

Asp Pro  Ser Pro Gly Ala Ile  Asp Ser Asn Asn Ser  Leu Ser Glu
    1685                1690                1695

Met Thr  His Phe Arg Pro Gln  Leu His His Ser Gly  Asp Met Val
    1700                1705                1710

Phe Thr  Pro Glu Ser Gly Leu  Gln Leu Arg Leu Asn  Glu Lys Leu
    1715                1720                1725

Gly Thr  Thr Ala Ala Thr Glu  Leu Lys Lys Leu Asp  Phe Lys Val
    1730                1735                1740

Ser Ser  Thr Ser Asn Asn Leu  Ile Ser Thr Ile Pro  Ser Asp Asn
    1745                1750                1755

Leu Ala  Ala Gly Thr Asp Asn  Thr Ser Ser Leu Gly  Pro Pro Ser
    1760                1765                1770

Met Pro  Val His Tyr Asp Ser  Gln Leu Asp Thr Thr  Leu Phe Gly
    1775                1780                1785
```

```
Lys Lys  Ser Ser Pro Leu Thr  Glu Ser Gly Gly Pro  Leu Ser Leu
    1790                 1795                 1800

Ser Glu  Glu Asn Asn Asp Ser  Lys Leu Leu Glu Ser  Gly Leu Met
    1805                 1810                 1815

Asn Ser  Gln Glu Ser Ser Trp  Gly Lys Asn Val Ser  Ser Thr Glu
    1820                 1825                 1830

Ser Gly  Arg Leu Phe Lys Gly  Lys Arg Ala His Gly  Pro Ala Leu
    1835                 1840                 1845

Leu Thr  Lys Asp Asn Ala Leu  Phe Lys Val Ser Ile  Ser Leu Leu
    1850                 1855                 1860

Lys Thr  Asn Lys Thr Ser Asn  Asn Ser Ala Thr Asn  Arg Lys Thr
    1865                 1870                 1875

His Ile  Asp Gly Pro Ser Leu  Leu Ile Glu Asn Ser  Pro Ser Val
    1880                 1885                 1890

Trp Gln  Asn Ile Leu Glu Ser  Asp Thr Glu Phe Lys  Lys Val Thr
    1895                 1900                 1905

Pro Leu  Ile His Asp Arg Met  Leu Met Asp Lys Asn  Ala Thr Ala
    1910                 1915                 1920

Leu Arg  Leu Asn His Met Ser  Asn Lys Thr Thr Ser  Ser Lys Asn
    1925                 1930                 1935

Met Glu  Met Val Gln Gln Lys  Lys Glu Gly Pro Ile  Pro Pro Asp
    1940                 1945                 1950

Ala Gln  Asn Pro Asp Met Ser  Phe Phe Lys Met Leu  Phe Leu Pro
    1955                 1960                 1965

Glu Ser  Ala Arg Trp Ile Gln  Arg Thr His Gly Lys  Asn Ser Leu
    1970                 1975                 1980

Asn Ser  Gly Gln Gly Pro Ser  Pro Lys Gln Leu Val  Ser Leu Gly
```

1985 1990 1995

Pro Glu Lys Ser Val Glu Gly Gln Asn Phe Leu Ser Glu Lys Asn
2000 2005 2010

Lys Val Val Val Gly Lys Gly Glu Phe Thr Lys Asp Val Gly Leu
2015 2020 2025

Lys Glu Met Val Phe Pro Ser Ser Arg Asn Leu Phe Leu Thr Asn
2030 2035 2040

Leu Asp Asn Leu His Glu Asn Asn Thr His Asn Gln Glu Lys Lys
2045 2050 2055

Ile Gln Glu Glu Ile Glu Lys Lys Glu Thr Leu Ile Gln Glu Asn
2060 2065 2070

Val Val Leu Pro Gln Ile His Thr Val Thr Gly Thr Lys Asn Phe
2075 2080 2085

Met Lys Asn Leu Phe Leu Leu Ser Thr Arg Gln Asn Val Glu Gly
2090 2095 2100

Ser Tyr Asp Gly Ala Tyr Ala Pro Val Leu Gln Asp Phe Arg Ser
2105 2110 2115

Leu Asn Asp Ser Thr Asn Arg Thr Lys Lys His Thr Ala His Phe
2120 2125 2130

Ser Lys Lys Gly Glu Glu Glu Asn Leu Glu Gly Leu Gly Asn Gln
2135 2140 2145

Thr Lys Gln Ile Val Glu Lys Tyr Ala Cys Thr Thr Arg Ile Ser
2150 2155 2160

Pro Asn Thr Ser Gln Gln Asn Phe Val Thr Gln Arg Ser Lys Arg
2165 2170 2175

Ala Leu Lys Gln Phe Arg Leu Pro Leu Glu Glu Thr Glu Leu Glu
2180 2185 2190

```
Lys Arg  Ile Ile Val Asp Asp  Thr Ser Thr Gln Trp  Ser Lys Asn
    2195                2200                2205

Met Lys  His Leu Thr Pro Ser  Thr Leu Thr Gln Ile  Asp Tyr Asn
    2210                2215                2220

Glu Lys  Glu Lys Gly Ala Ile  Thr Gln Ser Pro Leu  Ser Asp Cys
    2225                2230                2235

Leu Thr  Arg Ser His Ser Ile  Pro Gln Ala Asn Arg  Ser Pro Leu
    2240                2245                2250

Pro Ile  Ala Lys Val Ser Ser  Phe Pro Ser Ile Arg  Pro Ile Tyr
    2255                2260                2265

Leu Thr  Arg Val Leu Phe Gln  Asp Asn Ser Ser His  Leu Pro Ala
    2270                2275                2280

Ala Ser  Tyr Arg Lys Lys Asp  Ser Gly Val Gln Glu  Ser Ser His
    2285                2290                2295

Phe Leu  Gln Gly Ala Lys Lys  Asn Asn Leu Ser Leu  Ala Ile Leu
    2300                2305                2310

Thr Leu  Glu Met Thr Gly Asp  Gln Arg Glu Val Gly  Ser Leu Gly
    2315                2320                2325

Thr Ser  Ala Thr Asn Ser Val  Thr Tyr Lys Lys Val  Glu Asn Thr
    2330                2335                2340

Val Leu  Pro Lys Pro Asp Leu  Pro Lys Thr Ser Gly  Lys Val Glu
    2345                2350                2355

Leu Leu  Pro Lys Val His Ile  Tyr Gln Lys Asp Leu  Phe Pro Thr
    2360                2365                2370

Glu Thr  Ser Asn Gly Ser Pro  Gly His Leu Asp Leu  Val Glu Gly
    2375                2380                2385

Ser Leu  Leu Gln Gly Thr Glu  Gly Ala Ile Lys Trp  Asn Glu Ala
    2390                2395                2400
```

```
Asn Arg  Pro Gly Lys Val Pro  Phe Leu Arg Val Ala  Thr Glu Ser
    2405                2410                2415

Ser Ala  Lys Thr Pro Ser Lys  Leu Leu Asp Pro Leu  Ala Trp Asp
    2420                2425                2430

Asn His  Tyr Gly Thr Gln Ile  Pro Lys Glu Glu Trp  Lys Ser Gln
    2435                2440                2445

Glu Lys  Ser Pro Glu Lys Thr  Ala Phe Lys Lys Lys  Asp Thr Ile
    2450                2455                2460

Leu Ser  Leu Asn Ala Cys Glu  Ser Asn His Ala Ile  Ala Ala Ile
    2465                2470                2475

Asn Glu  Gly Gln Asn Lys Pro  Glu Ile Glu Val Thr  Trp Ala Lys
    2480                2485                2490

Gln Gly  Arg Thr Glu Arg Leu  Cys Ser Gln Asn Pro  Pro Val Leu
    2495                2500                2505

Lys Arg  His Gln Arg Glu Ile  Thr Arg Thr Thr Leu  Gln Ser Asp
    2510                2515                2520

Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile Ser Val  Glu Met Lys
    2525                2530                2535

Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp Glu Asn  Gln Ser Pro
    2540                2545                2550

Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr Phe Ile  Ala Ala Val
    2555                2560                2565

Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser Ser Pro  His Val Leu
    2570                2575                2580

Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro Gln Phe  Lys Lys Val
    2585                2590                2595

Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe Thr Gln  Pro Leu Tyr
    2600                2605                2610
```

```
Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu Leu Gly  Pro Tyr Ile
    2615                 2620                 2625

Arg Ala  Glu Val Glu Asp Asn  Ile Met Val Thr Phe  Arg Asn Gln
    2630                 2635                 2640

Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser Leu Ile  Ser Tyr Glu
    2645                 2650                 2655

Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg Lys Asn  Phe Val Lys
    2660                 2665                 2670

Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys Val Gln  His His Met
    2675                 2680                 2685

Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe
    2690                 2695                 2700

Ser Asp  Val Asp Leu Glu Lys  Asp Val His Ser Gly  Leu Ile Gly
    2705                 2710                 2715

Pro Leu  Leu Val Cys His Thr  Asn Thr Leu Asn Pro  Ala His Gly
    2720                 2725                 2730

Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
    2735                 2740                 2745

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    2750                 2755                 2760

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    2765                 2770                 2775

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    2780                 2785                 2790

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    2795                 2800                 2805

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
```

2810 2815 2820

Ser Gly His Val Phe Thr Val Arg Lys Lys Glu Glu Tyr Lys Met
2825 2830 2835

Ala Leu Tyr Asn Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met
2840 2845 2850

Leu Pro Ser Lys Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly
2855 2860 2865

Glu His Leu His Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser
2870 2875 2880

Asn Lys Cys Gln Thr Pro Leu Gly Met Ala Ser Gly His Ile Arg
2885 2890 2895

Asp Phe Gln Ile Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro
2900 2905 2910

Lys Leu Ala Arg Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser
2915 2920 2925

Thr Lys Glu Pro Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro
2930 2935 2940

Met Ile Ile His Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe
2945 2950 2955

Ser Ser Leu Tyr Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp
2960 2965 2970

Gly Lys Lys Trp Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu
2975 2980 2985

Met Val Phe Phe Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn
2990 2995 3000

Ile Phe Asn Pro Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro
3005 3010 3015

```
Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    3020                 3025                 3030

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    3035                 3040                 3045

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    3050                 3055                 3060

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    3065                 3070                 3075

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    3080                 3085                 3090

Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    3095                 3100                 3105

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    3110                 3115                 3120

Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    3125                 3130                 3135

Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
    3140                 3145                 3150

Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    3155                 3160                 3165

Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
    3170                 3175                 3180

Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr Gly
    3185                 3190                 3195

Ala Pro  Leu Gly Leu Arg Leu  Arg Gly Gly Ser Glu  Pro Ala Thr
    3200                 3205                 3210

Ser Gly  Ser Glu Thr Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    3215                 3220                 3225
```

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    3230   3235   3240

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser
    3245   3250   3255

Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr
    3260   3265   3270

Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
    3275   3280   3285

Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    3290   3295   3300

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser
    3305   3310   3315

Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr
    3320   3325   3330

Ser Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    3335   3340   3345

Ser Ala Pro
    3350

<210> 1579
<211> 3369
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<220>
<221> MOD_RES
<222> (2924)..(2926)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (2937)..(2940)

<223> Any amino acid

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Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
            20   25   30

Ser Thr Ala Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro
        35   40   45

Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser
    50   55   60

Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
65   70   75   80

Ser Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro
                85   90   95

Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro
            100   105   110

Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
        115   120   125

Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro
    130   135   140

Gly Thr Met Thr Arg Ile Val Gly Gly Ala Thr Arg Arg Tyr Tyr Leu
145   150   155   160

Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu
                165   170   175

Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro
            180   185   190

Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr
        195   200   205

```
Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu
    210                 215                 220

Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr
225                 230                 235                 240

Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val
                245                 250                 255

Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser
            260                 265                 270

Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr
        275                 280                 285

Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro
    290                 295                 300

Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp
305                 310                 315                 320

Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser
                325                 330                 335

Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe
            340                 345                 350

Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser
        355                 360                 365

Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met
    370                 375                 380

His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly
385                 390                 395                 400

Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr
                405                 410                 415

Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg
            420                 425                 430
```

```
Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr
        435                 440                 445

Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His
    450                 455                 460

Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp
465                 470                 475                 480

Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala
                485                 490                 495

Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg
            500                 505                 510

Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala
        515                 520                 525

Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu
    530                 535                 540

Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr
545                 550                 555                 560

Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr
                565                 570                 575

Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg
            580                 585                 590

Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly
        595                 600                 605

Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg
    610                 615                 620

Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr
625                 630                 635                 640

Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile
                645                 650                 655
```

```
Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp
            660                 665                 670

Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser
        675                 680                 685

Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu
    690                 695                 700

Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met
705                 710                 715                 720

Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg
                725                 730                 735

Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala
            740                 745                 750

Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His
        755                 760                 765

Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu
    770                 775                 780

His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp
785                 790                 795                 800

Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val
                805                 810                 815

Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe
            820                 825                 830

Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser
        835                 840                 845

Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys
    850                 855                 860

Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser
```

```
865                 870                 875                 880

Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser
                885                 890                 895

Gln Asn Ser Arg His Pro Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr
            900                 905                 910

Thr Ile Pro Glu Asn Asp Ile Glu Lys Thr Asp Pro Trp Phe Ala His
        915                 920                 925

Arg Thr Pro Met Pro Lys Ile Gln Asn Val Ser Ser Ser Asp Leu Leu
    930                 935                 940

Met Leu Leu Arg Gln Ser Pro Thr Pro His Gly Leu Ser Leu Ser Asp
945                 950                 955                 960

Leu Gln Glu Ala Lys Tyr Glu Thr Phe Ser Asp Asp Pro Ser Pro Gly
                965                 970                 975

Ala Ile Asp Ser Asn Asn Ser Leu Ser Glu Met Thr His Phe Arg Pro
            980                 985                 990

Gln Leu His His Ser Gly Asp Met  Val Phe Thr Pro Glu  Ser Gly Leu
        995                 1000                1005

Gln Leu  Arg Leu Asn Glu Lys  Leu Gly Thr Thr Ala  Ala Thr Glu
    1010                1015                1020

Leu Lys  Lys Leu Asp Phe Lys  Val Ser Ser Thr Ser  Asn Asn Leu
    1025                1030                1035

Ile Ser  Thr Ile Pro Ser Asp  Asn Leu Ala Ala Gly  Thr Asp Asn
    1040                1045                1050

Thr Ser  Ser Leu Gly Pro Pro  Ser Met Pro Val His  Tyr Asp Ser
    1055                1060                1065

Gln Leu  Asp Thr Thr Leu Phe  Gly Lys Lys Ser Ser  Pro Leu Thr
    1070                1075                1080
```

```
Glu Ser  Gly Gly Pro Leu Ser  Leu Ser Glu Glu Asn  Asn Asp Ser
    1085                1090                1095

Lys Leu  Leu Glu Ser Gly Leu  Met Asn Ser Gln Glu  Ser Ser Trp
    1100                1105                1110

Gly Lys  Asn Val Ser Ser Thr  Glu Ser Gly Arg Leu  Phe Lys Gly
    1115                1120                1125

Lys Arg  Ala His Gly Pro Ala  Leu Leu Thr Lys Asp  Asn Ala Leu
    1130                1135                1140

Phe Lys  Val Ser Ile Ser Leu  Leu Lys Thr Asn Lys  Thr Ser Asn
    1145                1150                1155

Asn Ser  Ala Thr Asn Arg Lys  Thr His Ile Asp Gly  Pro Ser Leu
    1160                1165                1170

Leu Ile  Glu Asn Ser Pro Ser  Val Trp Gln Asn Ile  Leu Glu Ser
    1175                1180                1185

Asp Thr  Glu Phe Lys Lys Val  Thr Pro Leu Ile His  Asp Arg Met
    1190                1195                1200

Leu Met  Asp Lys Asn Ala Thr  Ala Leu Arg Leu Asn  His Met Ser
    1205                1210                1215

Asn Lys  Thr Thr Ser Ser Lys  Asn Met Glu Met Val  Gln Gln Lys
    1220                1225                1230

Lys Glu  Gly Pro Ile Pro Pro  Asp Ala Gln Asn Pro  Asp Met Ser
    1235                1240                1245

Phe Phe  Lys Met Leu Phe Leu  Pro Glu Ser Ala Arg  Trp Ile Gln
    1250                1255                1260

Arg Thr  His Gly Lys Asn Ser  Leu Asn Ser Gly Gln  Gly Pro Ser
    1265                1270                1275

Pro Lys  Gln Leu Val Ser Leu  Gly Pro Glu Lys Ser  Val Glu Gly
    1280                1285                1290
```

```
Gln Asn  Phe Leu Ser Glu Lys  Asn Lys Val Val Val  Gly Lys Gly
    1295                 1300                 1305

Glu Phe  Thr Lys Asp Val Gly  Leu Lys Glu Met Val  Phe Pro Ser
    1310                 1315                 1320

Ser Arg  Asn Leu Phe Leu Thr  Asn Leu Asp Asn Leu  His Glu Asn
    1325                 1330                 1335

Asn Thr  His Asn Gln Glu Lys  Lys Ile Gln Glu Glu  Ile Glu Lys
    1340                 1345                 1350

Lys Glu  Thr Leu Ile Gln Glu  Asn Val Val Leu Pro  Gln Ile His
    1355                 1360                 1365

Thr Val  Thr Gly Thr Lys Asn  Phe Met Lys Asn Leu  Phe Leu Leu
    1370                 1375                 1380

Ser Thr  Arg Gln Asn Val Glu  Gly Ser Tyr Asp Gly  Ala Tyr Ala
    1385                 1390                 1395

Pro Val  Leu Gln Asp Phe Arg  Ser Leu Asn Asp Ser  Thr Asn Arg
    1400                 1405                 1410

Thr Lys  Lys His Thr Ala His  Phe Ser Lys Lys Gly  Glu Glu Glu
    1415                 1420                 1425

Asn Leu  Glu Gly Leu Gly Asn  Gln Thr Lys Gln Ile  Val Glu Lys
    1430                 1435                 1440

Tyr Ala  Cys Thr Thr Arg Ile  Ser Pro Asn Thr Ser  Gln Gln Asn
    1445                 1450                 1455

Phe Val  Thr Gln Arg Ser Lys  Arg Ala Leu Lys Gln  Phe Arg Leu
    1460                 1465                 1470

Pro Leu  Glu Glu Thr Glu Leu  Glu Lys Arg Ile Ile  Val Asp Asp
    1475                 1480                 1485

Thr Ser  Thr Gln Trp Ser Lys  Asn Met Lys His Leu  Thr Pro Ser
    1490                 1495                 1500
```

```
Thr Leu  Thr Gln Ile Asp Tyr  Asn Glu Lys Glu Lys  Gly Ala Ile
    1505                1510                1515

Thr Gln  Ser Pro Leu Ser Asp  Cys Leu Thr Arg Ser  His Ser Ile
    1520                1525                1530

Pro Gln  Ala Asn Arg Ser Pro  Leu Pro Ile Ala Lys  Val Ser Ser
    1535                1540                1545

Phe Pro  Ser Ile Arg Pro Ile  Tyr Leu Thr Arg Val  Leu Phe Gln
    1550                1555                1560

Asp Asn  Ser Ser His Leu Pro  Ala Ala Ser Tyr Arg  Lys Lys Asp
    1565                1570                1575

Ser Gly  Val Gln Glu Ser Ser  His Phe Leu Gln Gly  Ala Lys Lys
    1580                1585                1590

Asn Asn  Leu Ser Leu Ala Ile  Leu Thr Leu Glu Met  Thr Gly Asp
    1595                1600                1605

Gln Arg  Glu Val Gly Ser Leu  Gly Thr Ser Ala Thr  Asn Ser Val
    1610                1615                1620

Thr Tyr  Lys Lys Val Glu Asn  Thr Val Leu Pro Lys  Pro Asp Leu
    1625                1630                1635

Pro Lys  Thr Ser Gly Lys Val  Glu Leu Leu Pro Lys  Val His Ile
    1640                1645                1650

Tyr Gln  Lys Asp Leu Phe Pro  Thr Glu Thr Ser Asn  Gly Ser Pro
    1655                1660                1665

Gly His  Leu Asp Leu Val Glu  Gly Ser Leu Leu Gln  Gly Thr Glu
    1670                1675                1680

Gly Ala  Ile Lys Trp Asn Glu  Ala Asn Arg Pro Gly  Lys Val Pro
    1685                1690                1695

Phe Leu  Arg Val Ala Thr Glu  Ser Ser Ala Lys Thr  Pro Ser Lys
```

```
    1700                1705                1710

Leu Leu  Asp Pro Leu Ala Trp  Asp Asn His Tyr Gly  Thr Gln Ile
    1715                1720                1725

Pro Lys  Glu Glu Trp Lys Ser  Gln Glu Lys Ser Pro  Glu Lys Thr
    1730                1735                1740

Ala Phe  Lys Lys Lys Asp Thr  Ile Leu Ser Leu Asn  Ala Cys Glu
    1745                1750                1755

Ser Asn  His Ala Ile Ala Ala  Ile Asn Glu Gly Gln  Asn Lys Pro
    1760                1765                1770

Glu Ile  Glu Val Thr Trp Ala  Lys Gln Gly Arg Thr  Glu Arg Leu
    1775                1780                1785

Cys Ser  Gln Asn Pro Pro Val  Leu Lys Arg His Gln  Arg Glu Ile
    1790                1795                1800

Thr Arg  Thr Thr Leu Gln Ser  Asp Gln Glu Glu Ile  Asp Tyr Asp
    1805                1810                1815

Asp Thr  Ile Ser Val Glu Met  Lys Lys Glu Asp Phe  Asp Ile Tyr
    1820                1825                1830

Asp Glu  Asp Glu Asn Gln Ser  Pro Arg Ser Phe Gln  Lys Lys Thr
    1835                1840                1845

Arg His  Tyr Phe Ile Ala Ala  Val Glu Arg Leu Trp  Asp Tyr Gly
    1850                1855                1860

Met Ser  Ser Ser Pro His Val  Leu Arg Asn Arg Ala  Gln Ser Gly
    1865                1870                1875

Ser Val  Pro Gln Phe Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp
    1880                1885                1890

Gly Ser  Phe Thr Gln Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His
    1895                1900                1905
```

```
Leu Gly  Leu Leu Gly Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn
    1910                 1915                 1920

Ile Met  Val Thr Phe Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe
    1925                 1930                 1935

Tyr Ser  Ser Leu Ile Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala
    1940                 1945                 1950

Glu Pro  Arg Lys Asn Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr
    1955                 1960                 1965

Phe Trp  Lys Val Gln His His  Met Ala Pro Thr Lys  Asp Glu Phe
    1970                 1975                 1980

Asp Cys  Lys Ala Trp Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys
    1985                 1990                 1995

Asp Val  His Ser Gly Leu Ile  Gly Pro Leu Leu Val  Cys His Thr
    2000                 2005                 2010

Asn Thr  Leu Asn Pro Ala His  Gly Arg Gln Val Thr  Val Gln Glu
    2015                 2020                 2025

Phe Ala  Leu Phe Phe Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr
    2030                 2035                 2040

Phe Thr  Glu Asn Met Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile
    2045                 2050                 2055

Gln Met  Glu Asp Pro Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala
    2060                 2065                 2070

Ile Asn  Gly Tyr Ile Met Asp  Thr Leu Pro Gly Leu  Val Met Ala
    2075                 2080                 2085

Gln Asp  Gln Arg Ile Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn
    2090                 2095                 2100

Glu Asn  Ile His Ser Ile His  Phe Ser Gly His Val  Phe Thr Val
    2105                 2110                 2115
```

```
Arg Lys  Lys Glu Glu Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro
    2120                 2125                 2130

Gly Val  Phe Glu Thr Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile
    2135                 2140                 2145

Trp Arg  Val Glu Cys Leu Ile  Gly Glu His Leu His  Ala Gly Met
    2150                 2155                 2160

Ser Thr  Leu Phe Leu Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu
    2165                 2170                 2175

Gly Met  Ala Ser Gly His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser
    2180                 2185                 2190

Gly Gln  Tyr Gly Gln Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr
    2195                 2200                 2205

Ser Gly  Ser Ile Asn Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp
    2210                 2215                 2220

Ile Lys  Val Asp Leu Leu Ala  Pro Met Ile Ile His  Gly Ile Lys
    2225                 2230                 2235

Thr Gln  Gly Ala Arg Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln
    2240                 2245                 2250

Phe Ile  Ile Met Tyr Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr
    2255                 2260                 2265

Arg Gly  Asn Ser Thr Gly Thr  Leu Met Val Phe Phe  Gly Asn Val
    2270                 2275                 2280

Asp Ser  Ser Gly Ile Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile
    2285                 2290                 2295

Ala Arg  Tyr Ile Arg Leu His  Pro Thr His Tyr Ser  Ile Arg Ser
    2300                 2305                 2310

Thr Leu  Arg Met Glu Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser
    2315                 2320                 2325
```

```
Met Pro  Leu Gly Met Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile
    2330                2335                2340

Thr Ala  Ser Ser Tyr Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro
    2345                2350                2355

Ser Lys  Ala Arg Leu His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg
    2360                2365                2370

Pro Gln  Val Asn Asn Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln
    2375                2380                2385

Lys Thr  Met Lys Val Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser
    2390                2395                2400

Leu Leu  Thr Ser Met Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser
    2405                2410                2415

Gln Asp  Gly His Gln Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val
    2420                2425                2430

Lys Val  Phe Gln Gly Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn
    2435                2440                2445

Ser Leu  Asp Pro Pro Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro
    2450                2455                2460

Gln Ser  Trp Val His Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly
    2465                2470                2475

Cys Glu  Ala Gln Asp Leu Tyr  Gly Thr Met Thr Arg  Ile Val Gly
    2480                2485                2490

Gly Gly  Ser Thr Ser Glu Ser  Pro Ser Gly Thr Ala  Pro Gly Thr
    2495                2500                2505

Ser Pro  Ser Gly Glu Ser Ser  Thr Ala Pro Gly Ser  Thr Ser Glu
    2510                2515                2520

Ser Pro  Ser Gly Thr Ala Pro  Gly Ser Thr Ser Glu  Ser Pro Ser
```

2525 2530 2535

Gly Thr Ala Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser
2540 2545 2550

Pro Gly Thr Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Ser
2555 2560 2565

Thr Ser Glu Ser Pro Ser Gly Thr Ala Pro Gly Ser Thr Ser Glu
2570 2575 2580

Ser Pro Ser Gly Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser
2585 2590 2595

Ser Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala
2600 2605 2610

Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Thr
2615 2620 2625

Ser Pro Ser Gly Glu Ser Ser Thr Ala Pro Gly Ser Thr Ser Ser
2630 2635 2640

Thr Ala Glu Ser Pro Gly Pro Gly Thr Ser Pro Ser Gly Glu Ser
2645 2650 2655

Ser Thr Ala Pro Gly Thr Ser Pro Ser Gly Glu Ser Ser Thr Ala
2660 2665 2670

Pro Gly Ser Thr Ser Ser Thr Ala Glu Ser Pro Gly Pro Gly Thr
2675 2680 2685

Ser Thr Pro Glu Ser Gly Ser Ala Ser Pro Gly Thr Ser Thr Pro
2690 2695 2700

Glu Ser Gly Ser Ala Ser Pro Gly Ser Thr Ser Glu Ser Pro Ser
2705 2710 2715

Gly Thr Ala Pro Gly Ser Thr Ser Glu Ser Pro Ser Gly Thr Ala
2720 2725 2730

```
Pro Gly  Thr Ser Thr Pro Glu  Ser Gly Ser Ala Ser  Pro Gly Ser
    2735                2740                2745

Thr Ser  Ser Thr Ala Glu Ser  Pro Gly Pro Gly Thr  Ser Thr Pro
    2750                2755                2760

Glu Ser  Gly Ser Ala Ser Pro  Gly Ser Thr Ser Glu  Ser Pro Ser
    2765                2770                2775

Gly Thr  Ala Pro Gly Thr Ser  Pro Ser Gly Glu Ser  Ser Thr Ala
    2780                2785                2790

Pro Gly  Ser Thr Ser Ser Thr  Ala Glu Ser Pro Gly  Pro Gly Thr
    2795                2800                2805

Ser Pro  Ser Gly Glu Ser Ser  Thr Ala Pro Gly Thr  Ser Thr Pro
    2810                2815                2820

Glu Ser  Gly Ser Ala Ser Pro  Gly Ser Thr Ser Ser  Thr Ala Glu
    2825                2830                2835

Ser Pro  Gly Pro Gly Ser Thr  Ser Ser Thr Ala Glu  Ser Pro Gly
    2840                2845                2850

Pro Gly  Ser Thr Ser Ser Thr  Ala Glu Ser Pro Gly  Pro Gly Ser
    2855                2860                2865

Thr Ser  Ser Thr Ala Glu Ser  Pro Gly Pro Gly Thr  Ser Pro Ser
    2870                2875                2880

Gly Glu  Ser Ser Thr Ala Pro  Gly Ser Thr Ser Glu  Ser Pro Ser
    2885                2890                2895

Gly Thr  Ala Pro Gly Ser Thr  Ser Glu Ser Pro Ser  Gly Thr Ala
    2900                2905                2910

Pro Gly  Thr Ser Thr Pro Glu  Ser Gly Pro Xaa Xaa  Xaa Gly Ala
    2915                2920                2925

Ser Ala  Ser Gly Ala Pro Ser  Thr Xaa Xaa Xaa Xaa  Ser Glu Ser
    2930                2935                2940
```

```
Pro Ser  Gly Thr Ala Pro Gly  Ser Thr Ser Glu Ser  Pro Ser Gly
    2945                2950                2955

Thr Ala  Pro Gly Ser Thr Ser  Glu Ser Pro Ser Gly  Thr Ala Pro
    2960                2965                2970

Gly Ser  Thr Ser Glu Ser Pro  Ser Gly Thr Ala Pro  Gly Ser Thr
    2975                2980                2985

Ser Glu  Ser Pro Ser Gly Thr  Ala Pro Gly Ser Thr  Ser Glu Ser
    2990                2995                3000

Pro Ser  Gly Thr Ala Pro Gly  Thr Ser Thr Pro Glu  Ser Gly Ser
    3005                3010                3015

Ala Ser  Pro Gly Thr Ser Pro  Ser Gly Glu Ser Ser  Thr Ala Pro
    3020                3025                3030

Gly Thr  Ser Pro Ser Gly Glu  Ser Ser Thr Ala Pro  Gly Ser Thr
    3035                3040                3045

Ser Ser  Thr Ala Glu Ser Pro  Gly Pro Gly Thr Ser  Pro Ser Gly
    3050                3055                3060

Glu Ser  Ser Thr Ala Pro Gly  Thr Ser Thr Pro Glu  Ser Gly Ser
    3065                3070                3075

Ala Ser  Pro Gly Ser Thr Ser  Glu Ser Pro Ser Gly  Thr Ala Pro
    3080                3085                3090

Gly Ser  Thr Ser Glu Ser Pro  Ser Gly Thr Ala Pro  Gly Thr Ser
    3095                3100                3105

Pro Ser  Gly Glu Ser Ser Thr  Ala Pro Gly Ser Thr  Ser Glu Ser
    3110                3115                3120

Pro Ser  Gly Thr Ala Pro Gly  Thr Ser Thr Pro Glu  Ser Gly Ser
    3125                3130                3135

Ala Ser  Pro Gly Thr Ser Thr  Pro Glu Ser Gly Ser  Ala Ser Pro
    3140                3145                3150
```

```
Gly Ser  Thr Ser Glu Ser Pro  Ser Gly Thr Ala Pro  Gly Thr Ser
    3155                 3160                 3165

Thr Pro  Glu Ser Gly Ser Ala  Ser Pro Gly Ser Thr  Ser Ser Thr
    3170                 3175                 3180

Ala Glu  Ser Pro Gly Pro Gly  Ser Thr Ser Glu Ser  Pro Ser Gly
    3185                 3190                 3195

Thr Ala  Pro Gly Ser Thr Ser  Glu Ser Pro Ser Gly  Thr Ala Pro
    3200                 3205                 3210

Gly Thr  Ser Pro Ser Gly Glu  Ser Ser Thr Ala Pro  Gly Ser Thr
    3215                 3220                 3225

Ser Ser  Thr Ala Glu Ser Pro  Gly Pro Gly Thr Ser  Pro Ser Gly
    3230                 3235                 3240

Glu Ser  Ser Thr Ala Pro Gly  Thr Ser Thr Pro Glu  Ser Gly Ser
    3245                 3250                 3255

Ala Ser  Pro Gly Thr Ser Pro  Ser Gly Glu Ser Ser  Thr Ala Pro
    3260                 3265                 3270

Gly Thr  Ser Pro Ser Gly Glu  Ser Ser Thr Ala Pro  Gly Thr Ser
    3275                 3280                 3285

Pro Ser  Gly Glu Ser Ser Thr  Ala Pro Gly Ser Thr  Ser Ser Thr
    3290                 3295                 3300

Ala Glu  Ser Pro Gly Pro Gly  Ser Thr Ser Ser Thr  Ala Glu Ser
    3305                 3310                 3315

Pro Gly  Pro Gly Thr Ser Pro  Ser Gly Glu Ser Ser  Thr Ala Pro
    3320                 3325                 3330

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser
    3335                 3340                 3345

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
```

3350 3355 3360

Gly Ala Thr Gly Ser Pro
3365

<210> 1580
<211> 3350
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1580
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
100 105 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145 150 155 160

```
Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
```

```
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545                 550                 555                 560

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            580                 585                 590
```

```
Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    610                 615                 620

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                645                 650                 655

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        675                 680                 685

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    690                 695                 700

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
                725                 730                 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
    770                 775                 780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                805                 810                 815
```

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            820                 825                 830

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    850                 855                 860

Gly Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp
865                 870                 875                 880

Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro
                885                 890                 895

Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys
            900                 905                 910

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

Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu
    930                 935                 940

Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro
945                 950                 955                 960

Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly
                965                 970                 975

Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys
            980                 985                 990

Val Phe Pro Gly Gly Ser His Thr  Tyr Val Trp Gln Val  Leu Lys Glu
        995                 1000                1005

Asn Gly  Pro Met Ala Ser Asp  Pro Leu Cys Leu Thr  Tyr Ser Tyr
    1010                1015                1020

Leu Ser  His Val Asp Leu Val  Lys Asp Leu Asn Ser  Gly Leu Ile
    1025                1030                1035
```

```
Gly Ala  Leu Leu Val Cys Arg  Glu Gly Ser Leu Ala  Lys Glu Lys
    1040                1045                1050

Thr Gln  Thr Leu His Lys Phe  Ile Leu Leu Phe Ala  Val Phe Asp
    1055                1060                1065

Glu Gly  Lys Ser Trp His Ser  Glu Thr Lys Asn Ser  Leu Met Gln
    1070                1075                1080

Asp Arg  Asp Ala Ala Ser Ala  Arg Ala Trp Pro Lys  Met His Thr
    1085                1090                1095

Val Asn  Gly Tyr Val Asn Arg  Ser Leu Pro Gly Leu  Ile Gly Cys
    1100                1105                1110

His Arg  Lys Ser Val Tyr Trp  His Val Ile Gly Met  Gly Thr Thr
    1115                1120                1125

Pro Glu  Val His Ser Ile Phe  Leu Glu Gly His Thr  Phe Leu Val
    1130                1135                1140

Arg Asn  His Arg Gln Ala Ser  Leu Glu Ile Ser Pro  Ile Thr Phe
    1145                1150                1155

Leu Thr  Ala Gln Thr Leu Leu  Met Asp Leu Gly Gln  Phe Leu Leu
    1160                1165                1170

Phe Cys  His Ile Ser Ser His  Gln His Asp Gly Met  Glu Ala Tyr
    1175                1180                1185

Val Lys  Val Asp Ser Cys Pro  Glu Glu Pro Gln Leu  Arg Met Lys
    1190                1195                1200

Asn Asn  Glu Glu Ala Glu Asp  Tyr Asp Asp Asp Leu  Thr Asp Ser
    1205                1210                1215

Glu Met  Asp Val Val Arg Phe  Asp Asp Asp Asn Ser  Pro Ser Phe
    1220                1225                1230

Ile Gln  Ile Arg Ser Val Ala  Lys Lys His Pro Lys  Thr Trp Val
```

```
    1235                1240                1245

His Tyr  Ile Ala Ala Glu Glu  Glu Asp Trp Asp Tyr  Ala Pro Leu
    1250                1255                1260

Val Leu  Ala Pro Asp Asp Arg  Ser Tyr Lys Ser Gln  Tyr Leu Asn
    1265                1270                1275

Asn Gly  Pro Gln Arg Ile Gly  Arg Lys Tyr Lys Lys  Val Arg Phe
    1280                1285                1290

Met Ala  Tyr Thr Asp Glu Thr  Phe Lys Thr Arg Glu  Ala Ile Gln
    1295                1300                1305

His Glu  Ser Gly Ile Leu Gly  Pro Leu Leu Tyr Gly  Glu Val Gly
    1310                1315                1320

Asp Thr  Leu Leu Ile Ile Phe  Lys Asn Gln Ala Ser  Arg Pro Tyr
    1325                1330                1335

Asn Ile  Tyr Pro His Gly Ile  Thr Asp Val Arg Pro  Leu Tyr Ser
    1340                1345                1350

Arg Arg  Leu Pro Lys Gly Val  Lys His Leu Lys Asp  Phe Pro Ile
    1355                1360                1365

Leu Pro  Gly Glu Ile Phe Lys  Tyr Lys Trp Thr Val  Thr Val Glu
    1370                1375                1380

Asp Gly  Pro Thr Lys Ser Asp  Pro Arg Cys Leu Thr  Arg Tyr Tyr
    1385                1390                1395

Ser Ser  Phe Val Asn Met Glu  Arg Asp Leu Ala Ser  Gly Leu Ile
    1400                1405                1410

Gly Pro  Leu Leu Ile Cys Tyr  Lys Glu Ser Val Asp  Gln Arg Gly
    1415                1420                1425

Asn Gln  Ile Met Ser Asp Lys  Arg Asn Val Ile Leu  Phe Ser Val
    1430                1435                1440
```

```
Phe Asp  Glu Asn Arg Ser Trp  Tyr Leu Thr Glu Asn  Ile Gln Arg
    1445                 1450                 1455

Phe Leu  Pro Asn Pro Ala Gly  Val Gln Leu Glu Asp  Pro Glu Phe
    1460                 1465                 1470

Gln Ala  Ser Asn Ile Met His  Ser Ile Asn Gly Tyr  Val Phe Asp
    1475                 1480                 1485

Ser Leu  Gln Leu Ser Val Cys  Leu His Glu Val Ala  Tyr Trp Tyr
    1490                 1495                 1500

Ile Leu  Ser Ile Gly Ala Gln  Thr Asp Phe Leu Ser  Val Phe Phe
    1505                 1510                 1515

Ser Gly  Tyr Thr Phe Lys His  Lys Met Val Tyr Glu  Asp Thr Leu
    1520                 1525                 1530

Thr Leu  Phe Pro Phe Ser Gly  Glu Thr Val Phe Met  Ser Met Glu
    1535                 1540                 1545

Asn Pro  Gly Leu Trp Ile Leu  Gly Cys His Asn Ser  Asp Phe Arg
    1550                 1555                 1560

Asn Arg  Gly Met Thr Ala Leu  Leu Lys Val Ser Ser  Cys Asp Lys
    1565                 1570                 1575

Asn Thr  Gly Asp Tyr Tyr Glu  Asp Ser Tyr Glu Asp  Ile Ser Ala
    1580                 1585                 1590

Tyr Leu  Leu Ser Lys Asn Asn  Ala Ile Glu Pro Arg  Ser Phe Ser
    1595                 1600                 1605

Gln Asn  Ser Arg His Pro Ser  Thr Arg Gln Lys Gln  Phe Asn Ala
    1610                 1615                 1620

Thr Thr  Ile Pro Glu Asn Asp  Ile Glu Lys Thr Asp  Pro Trp Phe
    1625                 1630                 1635

Ala His  Arg Thr Pro Met Pro  Lys Ile Gln Asn Val  Ser Ser Ser
    1640                 1645                 1650
```

```
Asp Leu  Leu Met Leu Leu Arg  Gln Ser Pro Thr Pro  His Gly Leu
    1655                 1660                 1665

Ser Leu  Ser Asp Leu Gln Glu  Ala Lys Tyr Glu Thr  Phe Ser Asp
    1670                 1675                 1680

Asp Pro  Ser Pro Gly Ala Ile  Asp Ser Asn Asn Ser  Leu Ser Glu
    1685                 1690                 1695

Met Thr  His Phe Arg Pro Gln  Leu His His Ser Gly  Asp Met Val
    1700                 1705                 1710

Phe Thr  Pro Glu Ser Gly Leu  Gln Leu Arg Leu Asn  Glu Lys Leu
    1715                 1720                 1725

Gly Thr  Thr Ala Ala Thr Glu  Leu Lys Lys Leu Asp  Phe Lys Val
    1730                 1735                 1740

Ser Ser  Thr Ser Asn Asn Leu  Ile Ser Thr Ile Pro  Ser Asp Asn
    1745                 1750                 1755

Leu Ala  Ala Gly Thr Asp Asn  Thr Ser Ser Leu Gly  Pro Pro Ser
    1760                 1765                 1770

Met Pro  Val His Tyr Asp Ser  Gln Leu Asp Thr Thr  Leu Phe Gly
    1775                 1780                 1785

Lys Lys  Ser Ser Pro Leu Thr  Glu Ser Gly Gly Pro  Leu Ser Leu
    1790                 1795                 1800

Ser Glu  Glu Asn Asn Asp Ser  Lys Leu Leu Glu Ser  Gly Leu Met
    1805                 1810                 1815

Asn Ser  Gln Glu Ser Ser Trp  Gly Lys Asn Val Ser  Ser Thr Glu
    1820                 1825                 1830

Ser Gly  Arg Leu Phe Lys Gly  Lys Arg Ala His Gly  Pro Ala Leu
    1835                 1840                 1845

Leu Thr  Lys Asp Asn Ala Leu  Phe Lys Val Ser Ile  Ser Leu Leu
    1850                 1855                 1860
```

```
Lys Thr  Asn Lys Thr Ser Asn  Asn Ser Ala Thr Asn  Arg Lys Thr
    1865                1870                1875

His Ile  Asp Gly Pro Ser Leu  Leu Ile Glu Asn Ser  Pro Ser Val
    1880                1885                1890

Trp Gln  Asn Ile Leu Glu Ser  Asp Thr Glu Phe Lys  Lys Val Thr
    1895                1900                1905

Pro Leu  Ile His Asp Arg Met  Leu Met Asp Lys Asn  Ala Thr Ala
    1910                1915                1920

Leu Arg  Leu Asn His Met Ser  Asn Lys Thr Thr Ser  Ser Lys Asn
    1925                1930                1935

Met Glu  Met Val Gln Gln Lys  Lys Glu Gly Pro Ile  Pro Pro Asp
    1940                1945                1950

Ala Gln  Asn Pro Asp Met Ser  Phe Phe Lys Met Leu  Phe Leu Pro
    1955                1960                1965

Glu Ser  Ala Arg Trp Ile Gln  Arg Thr His Gly Lys  Asn Ser Leu
    1970                1975                1980

Asn Ser  Gly Gln Gly Pro Ser  Pro Lys Gln Leu Val  Ser Leu Gly
    1985                1990                1995

Pro Glu  Lys Ser Val Glu Gly  Gln Asn Phe Leu Ser  Glu Lys Asn
    2000                2005                2010

Lys Val  Val Val Gly Lys Gly  Glu Phe Thr Lys Asp  Val Gly Leu
    2015                2020                2025

Lys Glu  Met Val Phe Pro Ser  Ser Arg Asn Leu Phe  Leu Thr Asn
    2030                2035                2040

Leu Asp  Asn Leu His Glu Asn  Asn Thr His Asn Gln  Glu Lys Lys
    2045                2050                2055

Ile Gln  Glu Glu Ile Glu Lys  Lys Glu Thr Leu Ile  Gln Glu Asn
```

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    2060                2065                2070

Val Val  Leu Pro Gln Ile His  Thr Val Thr Gly Thr  Lys Asn Phe
    2075                2080                2085

Met Lys  Asn Leu Phe Leu Leu  Ser Thr Arg Gln Asn  Val Glu Gly
    2090                2095                2100

Ser Tyr  Asp Gly Ala Tyr Ala  Pro Val Leu Gln Asp  Phe Arg Ser
    2105                2110                2115

Leu Asn  Asp Ser Thr Asn Arg  Thr Lys Lys His Thr  Ala His Phe
    2120                2125                2130

Ser Lys  Lys Gly Glu Glu Glu  Asn Leu Glu Gly Leu  Gly Asn Gln
    2135                2140                2145

Thr Lys  Gln Ile Val Glu Lys  Tyr Ala Cys Thr Thr  Arg Ile Ser
    2150                2155                2160

Pro Asn  Thr Ser Gln Gln Asn  Phe Val Thr Gln Arg  Ser Lys Arg
    2165                2170                2175

Ala Leu  Lys Gln Phe Arg Leu  Pro Leu Glu Glu Thr  Glu Leu Glu
    2180                2185                2190

Lys Arg  Ile Ile Val Asp Asp  Thr Ser Thr Gln Trp  Ser Lys Asn
    2195                2200                2205

Met Lys  His Leu Thr Pro Ser  Thr Leu Thr Gln Ile  Asp Tyr Asn
    2210                2215                2220

Glu Lys  Glu Lys Gly Ala Ile  Thr Gln Ser Pro Leu  Ser Asp Cys
    2225                2230                2235

Leu Thr  Arg Ser His Ser Ile  Pro Gln Ala Asn Arg  Ser Pro Leu
    2240                2245                2250

Pro Ile  Ala Lys Val Ser Ser  Phe Pro Ser Ile Arg  Pro Ile Tyr
    2255                2260                2265
```

```
Leu Thr  Arg Val Leu Phe Gln  Asp Asn Ser Ser His  Leu Pro Ala
    2270                2275                2280

Ala Ser  Tyr Arg Lys Lys Asp  Ser Gly Val Gln Glu  Ser Ser His
    2285                2290                2295

Phe Leu  Gln Gly Ala Lys Lys  Asn Asn Leu Ser Leu  Ala Ile Leu
    2300                2305                2310

Thr Leu  Glu Met Thr Gly Asp  Gln Arg Glu Val Gly  Ser Leu Gly
    2315                2320                2325

Thr Ser  Ala Thr Asn Ser Val  Thr Tyr Lys Lys Val  Glu Asn Thr
    2330                2335                2340

Val Leu  Pro Lys Pro Asp Leu  Pro Lys Thr Ser Gly  Lys Val Glu
    2345                2350                2355

Leu Leu  Pro Lys Val His Ile  Tyr Gln Lys Asp Leu  Phe Pro Thr
    2360                2365                2370

Glu Thr  Ser Asn Gly Ser Pro  Gly His Leu Asp Leu  Val Glu Gly
    2375                2380                2385

Ser Leu  Leu Gln Gly Thr Glu  Gly Ala Ile Lys Trp  Asn Glu Ala
    2390                2395                2400

Asn Arg  Pro Gly Lys Val Pro  Phe Leu Arg Val Ala  Thr Glu Ser
    2405                2410                2415

Ser Ala  Lys Thr Pro Ser Lys  Leu Leu Asp Pro Leu  Ala Trp Asp
    2420                2425                2430

Asn His  Tyr Gly Thr Gln Ile  Pro Lys Glu Glu Trp  Lys Ser Gln
    2435                2440                2445

Glu Lys  Ser Pro Glu Lys Thr  Ala Phe Lys Lys Lys  Asp Thr Ile
    2450                2455                2460

Leu Ser  Leu Asn Ala Cys Glu  Ser Asn His Ala Ile  Ala Ala Ile
    2465                2470                2475
```

```
Asn Glu  Gly Gln Asn Lys Pro  Glu Ile Glu Val Thr  Trp Ala Lys
    2480                 2485                 2490

Gln Gly  Arg Thr Glu Arg Leu  Cys Ser Gln Asn Pro  Pro Val Leu
    2495                 2500                 2505

Lys Arg  His Gln Arg Glu Ile  Thr Arg Thr Thr Leu  Gln Ser Asp
    2510                 2515                 2520

Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile Ser Val  Glu Met Lys
    2525                 2530                 2535

Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp Glu Asn  Gln Ser Pro
    2540                 2545                 2550

Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr Phe Ile  Ala Ala Val
    2555                 2560                 2565

Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser Ser Pro  His Val Leu
    2570                 2575                 2580

Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro Gln Phe  Lys Lys Val
    2585                 2590                 2595

Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe Thr Gln  Pro Leu Tyr
    2600                 2605                 2610

Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu Leu Gly  Pro Tyr Ile
    2615                 2620                 2625

Arg Ala  Glu Val Glu Asp Asn  Ile Met Val Thr Phe  Arg Asn Gln
    2630                 2635                 2640

Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser Leu Ile  Ser Tyr Glu
    2645                 2650                 2655

Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg Lys Asn  Phe Val Lys
    2660                 2665                 2670

Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys Val Gln  His His Met
    2675                 2680                 2685
```

```
Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe
    2690                 2695                 2700

Ser Asp  Val Asp Leu Glu Lys  Asp Val His Ser Gly  Leu Ile Gly
    2705                 2710                 2715

Pro Leu  Leu Val Cys His Thr  Asn Thr Leu Asn Pro  Ala His Gly
    2720                 2725                 2730

Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
    2735                 2740                 2745

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    2750                 2755                 2760

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    2765                 2770                 2775

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    2780                 2785                 2790

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    2795                 2800                 2805

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    2810                 2815                 2820

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    2825                 2830                 2835

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
    2840                 2845                 2850

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    2855                 2860                 2865

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
    2870                 2875                 2880

Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
```

```
    2885                2890                2895

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    2900                2905                2910

Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    2915                2920                2925

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    2930                2935                2940

Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    2945                2950                2955

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    2960                2965                2970

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    2975                2980                2985

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    2990                2995                3000

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    3005                3010                3015

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    3020                3025                3030

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    3035                3040                3045

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    3050                3055                3060

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    3065                3070                3075

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    3080                3085                3090
```

```
Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    3095                 3100                 3105

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    3110                 3115                 3120

Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    3125                 3130                 3135

Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
    3140                 3145                 3150

Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    3155                 3160                 3165

Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
    3170                 3175                 3180

Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr Gly
    3185                 3190                 3195

Lys Leu  Thr Arg Ala Glu Thr  Gly Gly Ser Glu Pro  Ala Thr Ser
    3200                 3205                 3210

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    3215                 3220                 3225

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    3230                 3235                 3240

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr
    3245                 3250                 3255

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Ser Glu Pro  Ala Thr Ser
    3260                 3265                 3270

Gly Ser  Glu Thr Pro Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu
    3275                 3280                 3285

Thr Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    3290                 3295                 3300
```

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
    3305   3310   3315

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
    3320   3325   3330

Gly Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser
    3335   3340   3345

Ala Pro
    3350

<210> 1581
<211> 2456
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1581
Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
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Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
            20   25   30

Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        35   40   45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
    50   55   60

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly
65   70   75   80

Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                85   90   95

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
            100   105   110

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
        115                 120                 125

Ser Glu Thr Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Lys Leu Thr Arg Ala Glu Thr Gly Ala Thr Arg Arg Tyr Tyr Leu
145                 150                 155                 160

Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu
                165                 170                 175

Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro
            180                 185                 190

Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr
        195                 200                 205

Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly Leu
    210                 215                 220

Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr
225                 230                 235                 240

Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val
                245                 250                 255

Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser
            260                 265                 270

Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr
        275                 280                 285

Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro
    290                 295                 300

Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp
305                 310                 315                 320

Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser
                325                 330                 335
```

```
Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe
            340                 345                 350

Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser
        355                 360                 365

Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met
    370                 375                 380

His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly
385                 390                 395                 400

Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr
                405                 410                 415

Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg
            420                 425                 430

Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr
        435                 440                 445

Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His
    450                 455                 460

Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp
465                 470                 475                 480

Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala
                485                 490                 495

Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg
            500                 505                 510

Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala
        515                 520                 525

Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Glu
    530                 535                 540

Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr
545                 550                 555                 560
```

```
Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr
                565                 570                 575

Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg
            580                 585                 590

Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly
        595                 600                 605

Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg
    610                 615                 620

Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr
625                 630                 635                 640

Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile
                645                 650                 655

Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp
            660                 665                 670

Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser
        675                 680                 685

Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu
    690                 695                 700

Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met
705                 710                 715                 720

Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg
                725                 730                 735

Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala
            740                 745                 750

Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His
        755                 760                 765

Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu
```

```
    770                 775                 780

His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp
785                 790                 795                 800

Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met Val
                805                 810                 815

Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe
            820                 825                 830

Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser
        835                 840                 845

Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys
    850                 855                 860

Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser
865                 870                 875                 880

Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser
                885                 890                 895

Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr
            900                 905                 910

Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
        915                 920                 925

Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
    930                 935                 940

Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
945                 950                 955                 960

Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
                965                 970                 975

Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
            980                 985                 990
```

```
Val Phe Gln Glu Phe Thr Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg
        995                 1000                1005


Gly Glu  Leu Asn Glu His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg
    1010                1015                1020


Ala Glu  Val Glu Asp Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala
    1025                1030                1035


Ser Arg  Pro Tyr Ser Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu
    1040                1045                1050


Asp Gln  Arg Gln Gly Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro
    1055                1060                1065


Asn Glu  Thr Lys Thr Tyr Phe  Trp Lys Val Gln His  His Met Ala
    1070                1075                1080


Pro Thr  Lys Asp Glu Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser
    1085                1090                1095


Asp Val  Asp Leu Glu Lys Asp  Val His Ser Gly Leu  Ile Gly Pro
    1100                1105                1110


Leu Leu  Val Cys His Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg
    1115                1120                1125


Gln Val  Thr Val Gln Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp
    1130                1135                1140


Glu Thr  Lys Ser Trp Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys
    1145                1150                1155


Arg Ala  Pro Cys Asn Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu
    1160                1165                1170


Asn Tyr  Arg Phe His Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu
    1175                1180                1185


Pro Gly  Leu Val Met Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu
    1190                1195                1200
```

```
Leu Ser  Met Gly Ser Asn Glu  Asn Ile His Ser Ile  His Phe Ser
    1205                1210                1215

Gly His  Val Phe Thr Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala
    1220                1225                1230

Leu Tyr  Asn Leu Tyr Pro Gly  Val Phe Glu Thr Val  Glu Met Leu
    1235                1240                1245

Pro Ser  Lys Ala Gly Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu
    1250                1255                1260

His Leu  His Ala Gly Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn
    1265                1270                1275

Lys Cys  Gln Thr Pro Leu Gly  Met Ala Ser Gly His  Ile Arg Asp
    1280                1285                1290

Phe Gln  Ile Thr Ala Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys
    1295                1300                1305

Leu Ala  Arg Leu His Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr
    1310                1315                1320

Lys Glu  Pro Phe Ser Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met
    1325                1330                1335

Ile Ile  His Gly Ile Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser
    1340                1345                1350

Ser Leu  Tyr Ile Ser Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly
    1355                1360                1365

Lys Lys  Trp Gln Thr Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met
    1370                1375                1380

Val Phe  Phe Gly Asn Val Asp  Ser Ser Gly Ile Lys  His Asn Ile
    1385                1390                1395

Phe Asn  Pro Pro Ile Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr
    1400                1405                1410
```

```
His Tyr  Ser Ile Arg Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys
    1415                 1420                 1425

Asp Leu  Asn Ser Cys Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala
    1430                 1435                 1440

Ile Ser  Asp Ala Gln Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met
    1445                 1450                 1455

Phe Ala  Thr Trp Ser Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly
    1460                 1465                 1470

Arg Ser  Asn Ala Trp Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp
    1475                 1480                 1485

Leu Gln  Val Asp Phe Gln Lys  Thr Met Lys Val Thr  Gly Val Thr
    1490                 1495                 1500

Thr Gln  Gly Val Lys Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu
    1505                 1510                 1515

Phe Leu  Ile Ser Ser Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe
    1520                 1525                 1530

Phe Gln  Asn Gly Lys Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser
    1535                 1540                 1545

Phe Thr  Pro Val Val Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg
    1550                 1555                 1560

Tyr Leu  Arg Ile His Pro Gln  Ser Trp Val His Gln  Ile Ala Leu
    1565                 1570                 1575

Arg Met  Glu Val Leu Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Gly
    1580                 1585                 1590

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu
    1595                 1600                 1605

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
```

1610 1615 1620

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
1625 1630 1635

Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
1640 1645 1650

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
1655 1660 1665

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser
1670 1675 1680

Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu
1685 1690 1695

Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
1700 1705 1710

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
1715 1720 1725

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser
1730 1735 1740

Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr
1745 1750 1755

Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
1760 1765 1770

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
1775 1780 1785

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser
1790 1795 1800

Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
1805 1810 1815

```
Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    1820                 1825                 1830

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    1835                 1840                 1845

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr
    1850                 1855                 1860

Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    1865                 1870                 1875

Gly Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    1880                 1885                 1890

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    1895                 1900                 1905

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    1910                 1915                 1920

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1925                 1930                 1935

Ala Pro  Gly Thr Ser Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly
    1940                 1945                 1950

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr
    1955                 1960                 1965

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser
    1970                 1975                 1980

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    1985                 1990                 1995

Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2000                 2005                 2010

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    2015                 2020                 2025
```

```
Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser
    2030                 2035                 2040

Gly Ser  Glu Thr Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2045                 2050                 2055

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2060                 2065                 2070

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
    2075                 2080                 2085

Glu Pro  Ser Glu Gly Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr
    2090                 2095                 2100

Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2105                 2110                 2115

Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2120                 2125                 2130

Ser Pro  Ala Gly Ser Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu
    2135                 2140                 2145

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser
    2150                 2155                 2160

Glu Gly  Ser Ala Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2165                 2170                 2175

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2180                 2185                 2190

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    2195                 2200                 2205

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    2210                 2215                 2220

Pro Glu  Ser Gly Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2225                 2230                 2235
```

```
Ala Pro  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2240                2245                2250

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro
    2255                2260                2265

Ala Thr  Ser Gly Ser Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr
    2270                2275                2280

Pro Glu  Ser Gly Pro Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr
    2285                2290                2295

Glu Glu  Gly Ser Pro Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly
    2300                2305                2310

Thr Ser  Thr Glu Pro Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu
    2315                2320                2325

Ser Ala  Thr Pro Glu Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr
    2330                2335                2340

Pro Glu  Ser Gly Pro Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser
    2345                2350                2355

Gly Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2360                2365                2370

Ser Glu  Pro Ala Thr Ser Gly  Ser Glu Thr Pro Gly  Ser Pro Ala
    2375                2380                2385

Gly Ser  Pro Thr Ser Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser
    2390                2395                2400

Glu Gly  Ser Ala Pro Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser
    2405                2410                2415

Ala Pro  Gly Ser Glu Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly
    2420                2425                2430

Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr
```

2435 2440 2445

Glu Pro Ser Glu Gly Ser Ala Pro
2450 2455

<210> 1582
<211> 2361
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1582
Met Ala Glu Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Pro
1 5 10 15

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
20 25 30

Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
35 40 45

Pro Gly Lys Leu Thr Arg Ala Glu Thr Gly Ala Thr Arg Arg Tyr Tyr
50 55 60

Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln Ser Asp Leu Gly
65 70 75 80

Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe
85 90 95

Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe
100 105 110

Thr Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Pro Trp Met Gly
115 120 125

Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile
130 135 140

Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly
145 150 155 160

```
Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr
                165                 170                 175

Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His
            180                 185                 190

Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp
        195                 200                 205

Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys
    210                 215                 220

Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly
225                 230                 235                 240

Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu
                245                 250                 255

Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn
            260                 265                 270

Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys
        275                 280                 285

Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile
    290                 295                 300

Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr
305                 310                 315                 320

Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val
                325                 330                 335

Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu
            340                 345                 350

Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys
        355                 360                 365

His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val
```

```
    370                 375                 380

Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu
385                 390                 395                 400

Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val
                405                 410                 415

Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val
            420                 425                 430

Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu
        435                 440                 445

Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser
    450                 455                 460

Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys
465                 470                 475                 480

Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr
                485                 490                 495

Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr
            500                 505                 510

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

Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu
    530                 535                 540

Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro
545                 550                 555                 560

Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu
                565                 570                 575

Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser
            580                 585                 590
```

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

Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile
    610                 615                 620

Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn
625                 630                 635                 640

Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro
                645                 650                 655

Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met
            660                 665                 670

His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys
        675                 680                 685

Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr
    690                 695                 700

Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr Thr Phe Lys His Lys Met
705                 710                 715                 720

Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val
                725                 730                 735

Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn
            740                 745                 750

Ser Asp Phe Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser
        755                 760                 765

Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile
    770                 775                 780

Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala Ile Glu Pro Arg Ser Phe
785                 790                 795                 800

Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg
                805                 810                 815
```

```
Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile
            820                 825                 830

Ser Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu
        835                 840                 845

Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile
    850                 855                 860

Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His
865                 870                 875                 880

Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys
                885                 890                 895

Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr
            900                 905                 910

Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg
        915                 920                 925

Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser
    930                 935                 940

Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln
945                 950                 955                 960

Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr
                965                 970                 975

Lys Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp
            980                 985                 990

Glu Phe Asp Cys Lys Ala Trp Ala  Tyr Phe Ser Asp Val  Asp Leu Glu
        995                 1000                1005

Lys Asp  Val His Ser Gly Leu  Ile Gly Pro Leu Leu  Val Cys His
    1010                1015                1020

Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg Gln Val  Thr Val Gln
    1025                1030                1035
```

```
Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp Glu Thr  Lys Ser Trp
    1040                1045                1050

Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys Arg Ala  Pro Cys Asn
    1055                1060                1065

Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu Asn Tyr  Arg Phe His
    1070                1075                1080

Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu Pro Gly  Leu Val Met
    1085                1090                1095

Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu Leu Ser  Met Gly Ser
    1100                1105                1110

Asn Glu  Asn Ile His Ser Ile  His Phe Ser Gly His  Val Phe Thr
    1115                1120                1125

Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala Leu Tyr  Asn Leu Tyr
    1130                1135                1140

Pro Gly  Val Phe Glu Thr Val  Glu Met Leu Pro Ser  Lys Ala Gly
    1145                1150                1155

Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu His Leu  His Ala Gly
    1160                1165                1170

Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn Lys Cys  Gln Thr Pro
    1175                1180                1185

Leu Gly  Met Ala Ser Gly His  Ile Arg Asp Phe Gln  Ile Thr Ala
    1190                1195                1200

Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys Leu Ala  Arg Leu His
    1205                1210                1215

Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr Lys Glu  Pro Phe Ser
    1220                1225                1230

Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met Ile Ile  His Gly Ile
```

```
    1235                1240                1245

Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser Ser Leu  Tyr Ile Ser
    1250                1255                1260

Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly Lys Lys  Trp Gln Thr
    1265                1270                1275

Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met Val Phe  Phe Gly Asn
    1280                1285                1290

Val Asp  Ser Ser Gly Ile Lys  His Asn Ile Phe Asn  Pro Pro Ile
    1295                1300                1305

Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr His Tyr  Ser Ile Arg
    1310                1315                1320

Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys Asp Leu  Asn Ser Cys
    1325                1330                1335

Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala Ile Ser  Asp Ala Gln
    1340                1345                1350

Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met Phe Ala  Thr Trp Ser
    1355                1360                1365

Pro Ser  Lys Ala Arg Leu His  Leu Gln Gly Arg Ser  Asn Ala Trp
    1370                1375                1380

Arg Pro  Gln Val Asn Asn Pro  Lys Glu Trp Leu Gln  Val Asp Phe
    1385                1390                1395

Gln Lys  Thr Met Lys Val Thr  Gly Val Thr Thr Gln  Gly Val Lys
    1400                1405                1410

Ser Leu  Leu Thr Ser Met Tyr  Val Lys Glu Phe Leu  Ile Ser Ser
    1415                1420                1425

Ser Gln  Asp Gly His Gln Trp  Thr Leu Phe Phe Gln  Asn Gly Lys
    1430                1435                1440
```

```
Val Lys  Val Phe Gln Gly Asn  Gln Asp Ser Phe Thr  Pro Val Val
    1445                1450                1455

Asn Ser  Leu Asp Pro Pro Leu  Leu Thr Arg Tyr Leu  Arg Ile His
    1460                1465                1470

Pro Gln  Ser Trp Val His Gln  Ile Ala Leu Arg Met  Glu Val Leu
    1475                1480                1485

Gly Cys  Glu Ala Gln Asp Leu  Tyr Gly Gly Ser Pro  Ala Gly Ser
    1490                1495                1500

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1505                1510                1515

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1520                1525                1530

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1535                1540                1545

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1550                1555                1560

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1565                1570                1575

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1580                1585                1590

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Ser Pro
    1595                1600                1605

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala
    1610                1615                1620

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1625                1630                1635

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1640                1645                1650
```

```
Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    1655                1660                1665

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1670                1675                1680

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1685                1690                1695

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1700                1705                1710

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1715                1720                1725

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Thr Glu Pro
    1730                1735                1740

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1745                1750                1755

Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1760                1765                1770

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Pro
    1775                1780                1785

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala
    1790                1795                1800

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1805                1810                1815

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1820                1825                1830

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1835                1840                1845

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1850                1855                1860
```

```
Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1865                1870                1875

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1880                1885                1890

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro
    1895                1900                1905

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro
    1910                1915                1920

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    1925                1930                1935

Ser Gly  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    1940                1945                1950

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1955                1960                1965

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1970                1975                1980

Thr Pro  Glu Ser Gly Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1985                1990                1995

Ser Ala  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2000                2005                2010

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro
    2015                2020                2025

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Ser Pro  Ala Gly Ser
    2030                2035                2040

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2045                2050                2055

Ser Gly  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
```

```
    2060                2065                2070

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    2075                2080                2085

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    2090                2095                2100

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    2105                2110                2115

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2120                2125                2130

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Ser Pro
    2135                2140                2145

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Glu Ser Ala
    2150                2155                2160

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    2165                2170                2175

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2180                2185                2190

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Ser Pro
    2195                2200                2205

Ala Gly  Ser Pro Thr Ser Thr  Glu Glu Gly Thr Ser  Thr Glu Pro
    2210                2215                2220

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Glu Ser Ala  Thr Pro Glu
    2225                2230                2235

Ser Gly  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2240                2245                2250

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    2255                2260                2265
```

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro Ala Thr
    2270   2275   2280

Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
    2285   2290   2295

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    2300   2305   2310

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu
    2315   2320   2325

Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala
    2330   2335   2340

Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
    2345   2350   2355

Ser Ala Pro
    2360

<210> 1583
<211> 1734
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1583
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val

```
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285
```

```
Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510
```

```
Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
```

```
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155
```

```
Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                 1165                 1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                 1180                 1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                 1195                 1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                 1210                 1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                 1225                 1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                 1255                 1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                 1270                 1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                 1285                 1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                 1300                 1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                 1315                 1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                 1330                 1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                 1345                 1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                 1360                 1365
```

```
Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Lys Leu  Thr Arg Ala
    1430                1435                1440

Glu Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1445                1450                1455

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    1460                1465                1470

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1475                1480                1485

Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1490                1495                1500

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1505                1510                1515

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1520                1525                1530

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    1535                1540                1545

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1550                1555                1560

Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1565                1570                1575
```

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr
    1580   1585   1590

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
    1595   1600   1605

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    1610   1615   1620

Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
    1625   1630   1635

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala
    1640   1645   1650

Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro
    1655   1660   1665

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
    1670   1675   1680

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    1685   1690   1695

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr
    1700   1705   1710

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
    1715   1720   1725

Ser Gly Ala Thr Gly Ser
    1730

<210> 1584
<211> 2310
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1584
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85   90   95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100   105   110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115   120   125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130   135   140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145   150   155   160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165   170   175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180   185   190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195   200   205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210   215   220

```
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
```

```
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655
```

```
Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880
```

```
Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095
```

```
Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
```

1295 1300 1305

Trp Ser Pro Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn
1310 1315 1320

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1325 1330 1335

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1340 1345 1350

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
1355 1360 1365

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
1370 1375 1380

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
1385 1390 1395

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
1400 1405 1410

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
1415 1420 1425

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr Lys Leu Thr Arg Ala
1430 1435 1440

Glu Thr Gly Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
1445 1450 1455

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
1460 1465 1470

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
1475 1480 1485

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
1490 1495 1500

```
Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    1505                1510                1515

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro
    1520                1525                1530

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser
    1535                1540                1545

Gly Ala  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1550                1555                1560

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1565                1570                1575

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro
    1580                1585                1590

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser
    1595                1600                1605

Gly Ala  Thr Gly Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1610                1615                1620

Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1625                1630                1635

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser
    1640                1645                1650

Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala
    1655                1660                1665

Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1670                1675                1680

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1685                1690                1695

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1700                1705                1710
```

```
Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1715                1720                1725

Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1730                1735                1740

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1745                1750                1755

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1760                1765                1770

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1775                1780                1785

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1790                1795                1800

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1805                1810                1815

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1820                1825                1830

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1835                1840                1845

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1850                1855                1860

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1865                1870                1875

Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser
    1880                1885                1890

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1895                1900                1905

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1910                1915                1920
```

```
Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    1925                1930                1935

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1940                1945                1950

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly
    1955                1960                1965

Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1970                1975                1980

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1985                1990                1995

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    2000                2005                2010

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly
    2015                2020                2025

Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    2030                2035                2040

Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    2045                2050                2055

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro
    2060                2065                2070

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser
    2075                2080                2085

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    2090                2095                2100

Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    2105                2110                2115

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser
```

2120 2125 2130

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly
2135 2140 2145

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
2150 2155 2160

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
2165 2170 2175

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
2180 2185 2190

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr
2195 2200 2205

Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
2210 2215 2220

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
2225 2230 2235

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
2240 2245 2250

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
2255 2260 2265

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
2270 2275 2280

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
2285 2290 2295

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
2300 2305 2310

<210> 1585
<211> 2599
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1585
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp

```
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415
```

```
Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640
```

```
Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Pro Gly Ala Ser Pro Gly
            740                 745                 750

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        755                 760                 765

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
    770                 775                 780

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser
785                 790                 795                 800

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
                805                 810                 815

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
            820                 825                 830

Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
        835                 840                 845

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    850                 855                 860
```

```
Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
865                 870                 875                 880


Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
                885                 890                 895


Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            900                 905                 910


Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
        915                 920                 925


Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
    930                 935                 940


Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960


Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                965                 970                 975


Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
            980                 985                 990


Thr Ser Ser Thr Gly Ser Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
        995                 1000                1005


Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1010                1015                1020


Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Pro Val Leu
    1025                1030                1035


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


Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile Ser Val  Glu Met Lys
    1055                1060                1065


Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp Glu Asn  Gln Ser Pro
```

```
    1070                1075                1080

Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr Phe Ile  Ala Ala Val
    1085                1090                1095

Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser Ser Pro  His Val Leu
    1100                1105                1110

Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro Gln Phe  Lys Lys Val
    1115                1120                1125

Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe Thr Gln  Pro Leu Tyr
    1130                1135                1140

Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu Leu Gly  Pro Tyr Ile
    1145                1150                1155

Arg Ala  Glu Val Glu Asp Asn  Ile Met Val Thr Phe  Arg Asn Gln
    1160                1165                1170

Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser Leu Ile  Ser Tyr Glu
    1175                1180                1185

Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg Lys Asn  Phe Val Lys
    1190                1195                1200

Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys Val Gln  His His Met
    1205                1210                1215

Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe
    1220                1225                1230

Ser Asp  Val Asp Leu Glu Lys  Asp Val His Ser Gly  Leu Ile Gly
    1235                1240                1245

Pro Leu  Leu Val Cys His Thr  Asn Thr Leu Asn Pro  Ala His Gly
    1250                1255                1260

Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
    1265                1270                1275
```

```
Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    1280                1285                1290

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    1295                1300                1305

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    1310                1315                1320

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    1325                1330                1335

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    1340                1345                1350

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    1355                1360                1365

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
    1370                1375                1380

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    1385                1390                1395

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
    1400                1405                1410

Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
    1415                1420                1425

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    1430                1435                1440

Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    1445                1450                1455

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    1460                1465                1470

Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    1475                1480                1485
```

```
Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    1490                1495                1500

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    1505                1510                1515

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    1520                1525                1530

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    1535                1540                1545

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    1550                1555                1560

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    1565                1570                1575

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    1580                1585                1590

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    1595                1600                1605

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    1610                1615                1620

Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    1625                1630                1635

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    1640                1645                1650

Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    1655                1660                1665

Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
    1670                1675                1680

Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    1685                1690                1695
```

```
Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
    1700                1705                1710

Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr Lys
    1715                1720                1725

Leu Thr  Arg Ala Glu Thr Gly  Gly Ala Ser Pro Gly  Thr Ser Ser
    1730                1735                1740

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1745                1750                1755

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr
    1760                1765                1770

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1775                1780                1785

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1790                1795                1800

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1805                1810                1815

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1820                1825                1830

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1835                1840                1845

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1850                1855                1860

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1865                1870                1875

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1880                1885                1890

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
```

```
    1895                1900                1905

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1910                1915                1920

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1925                1930                1935

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser
    1940                1945                1950

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Thr Pro
    1955                1960                1965

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1970                1975                1980

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1985                1990                1995

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    2000                2005                2010

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    2015                2020                2025

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2030                2035                2040

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2045                2050                2055

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    2060                2065                2070

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser
    2075                2080                2085

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2090                2095                2100
```

```
Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2105                2110                2115

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    2120                2125                2130

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    2135                2140                2145

Ser Gly  Ala Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2150                2155                2160

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    2165                2170                2175

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    2180                2185                2190

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    2195                2200                2205

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    2210                2215                2220

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2225                2230                2235

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    2240                2245                2250

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
    2255                2260                2265

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2270                2275                2280

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2285                2290                2295

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    2300                2305                2310
```

```
Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    2315                2320                2325

Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    2330                2335                2340

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    2345                2350                2355

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    2360                2365                2370

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    2375                2380                2385

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    2390                2395                2400

Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    2405                2410                2415

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    2420                2425                2430

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    2435                2440                2445

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    2450                2455                2460

Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    2465                2470                2475

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    2480                2485                2490

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    2495                2500                2505

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    2510                2515                2520
```

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
2525 2530 2535

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr
2540 2545 2550

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
2555 2560 2565

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
2570 2575 2580

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
2585 2590 2595

Pro

<210> 1586
<211> 2599
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1586
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
```

```
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gly Pro Gly Ala Ser Pro Gly Thr Ser
            740                 745                 750

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
        755                 760                 765

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
    770                 775                 780

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
785                 790                 795                 800

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
                805                 810                 815

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
            820                 825                 830

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
        835                 840                 845

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
    850                 855                 860

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
865                 870                 875                 880

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
                885                 890                 895

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
            900                 905                 910

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
        915                 920                 925

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
    930                 935                 940

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
945                 950                 955                 960
```

```
Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
               965                 970                 975

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
            980                 985                 990

Ser Thr Gly Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
        995                 1000                1005

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1010                1015                1020

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Gln Asn Pro  Pro Val Leu
    1025                1030                1035

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

Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile Ser Val  Glu Met Lys
    1055                1060                1065

Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp Glu Asn  Gln Ser Pro
    1070                1075                1080

Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr Phe Ile  Ala Ala Val
    1085                1090                1095

Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser Ser Pro  His Val Leu
    1100                1105                1110

Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro Gln Phe  Lys Lys Val
    1115                1120                1125

Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe Thr Gln  Pro Leu Tyr
    1130                1135                1140

Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu Leu Gly  Pro Tyr Ile
    1145                1150                1155

Arg Ala  Glu Val Glu Asp Asn  Ile Met Val Thr Phe  Arg Asn Gln
    1160                1165                1170
```

```
Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser Leu Ile  Ser Tyr Glu
    1175                1180                1185

Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg Lys Asn  Phe Val Lys
    1190                1195                1200

Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys Val Gln  His His Met
    1205                1210                1215

Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe
    1220                1225                1230

Ser Asp  Val Asp Leu Glu Lys  Asp Val His Ser Gly  Leu Ile Gly
    1235                1240                1245

Pro Leu  Leu Val Cys His Thr  Asn Thr Leu Asn Pro  Ala His Gly
    1250                1255                1260

Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
    1265                1270                1275

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    1280                1285                1290

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    1295                1300                1305

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    1310                1315                1320

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    1325                1330                1335

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    1340                1345                1350

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    1355                1360                1365

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
```

```
    1370                1375                1380

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    1385                1390                1395

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
    1400                1405                1410

Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
    1415                1420                1425

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    1430                1435                1440

Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    1445                1450                1455

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    1460                1465                1470

Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    1475                1480                1485

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    1490                1495                1500

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    1505                1510                1515

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    1520                1525                1530

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    1535                1540                1545

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    1550                1555                1560

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    1565                1570                1575
```

```
Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    1580                1585                1590

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    1595                1600                1605

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    1610                1615                1620

Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    1625                1630                1635

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    1640                1645                1650

Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    1655                1660                1665

Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
    1670                1675                1680

Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    1685                1690                1695

Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
    1700                1705                1710

Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr Lys
    1715                1720                1725

Leu Thr  Arg Ala Glu Thr Gly  Gly Ala Ser Pro Gly  Thr Ser Ser
    1730                1735                1740

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1745                1750                1755

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr
    1760                1765                1770

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1775                1780                1785
```

```
Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1790                 1795                 1800

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1805                 1810                 1815

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1820                 1825                 1830

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1835                 1840                 1845

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1850                 1855                 1860

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1865                 1870                 1875

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1880                 1885                 1890

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1895                 1900                 1905

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1910                 1915                 1920

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1925                 1930                 1935

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser
    1940                 1945                 1950

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Thr Pro
    1955                 1960                 1965

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1970                 1975                 1980

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1985                 1990                 1995
```

```
Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    2000                 2005                 2010

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    2015                 2020                 2025

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2030                 2035                 2040

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2045                 2050                 2055

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    2060                 2065                 2070

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser
    2075                 2080                 2085

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2090                 2095                 2100

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2105                 2110                 2115

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    2120                 2125                 2130

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    2135                 2140                 2145

Ser Gly  Ala Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2150                 2155                 2160

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    2165                 2170                 2175

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    2180                 2185                 2190

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
```

2195 2200 2205

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
2210 2215 2220

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
2225 2230 2235

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr
2240 2245 2250

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly
2255 2260 2265

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
2270 2275 2280

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
2285 2290 2295

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr
2300 2305 2310

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
2315 2320 2325

Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
2330 2335 2340

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
2345 2350 2355

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser
2360 2365 2370

Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
2375 2380 2385

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
2390 2395 2400

```
Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    2405                2410                2415

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    2420                2425                2430

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    2435                2440                2445

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    2450                2455                2460

Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    2465                2470                2475

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    2480                2485                2490

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    2495                2500                2505

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    2510                2515                2520

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2525                2530                2535

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr
    2540                2545                2550

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    2555                2560                2565

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    2570                2575                2580

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2585                2590                2595

Pro
```

<210> 1587
<211> 2599
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1587
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

```
Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620
```

```
Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640


Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655


Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670


Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685


Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700


Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720


Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735


Ile Glu Pro Arg Ser Phe Ser Gln Asn Gly Pro Gly Ala Ser Pro Gly
            740                 745                 750


Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
        755                 760                 765


Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
    770                 775                 780


Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser
785                 790                 795                 800


Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
                805                 810                 815


Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly
            820                 825                 830


Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro
```

```
        835                 840                 845

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly
    850                 855                 860

Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
865                 870                 875                 880

Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser
                885                 890                 895

Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
            900                 905                 910

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly
        915                 920                 925

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
    930                 935                 940

Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
945                 950                 955                 960

Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly
                965                 970                 975

Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly
            980                 985                 990

Thr Ser Ser Thr Gly Ser Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly
        995                 1000                1005

Thr Gly  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    1010                1015                1020

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Pro Val Leu
    1025                1030                1035

Lys Arg  His Gln Ala Glu Ile  Thr Arg Thr Thr Leu  Gln Ser Asp
    1040                1045                1050
```

```
Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile Ser Val  Glu Met Lys
    1055                1060                1065

Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp Glu Asn  Gln Ser Pro
    1070                1075                1080

Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr Phe Ile  Ala Ala Val
    1085                1090                1095

Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser Ser Pro  His Val Leu
    1100                1105                1110

Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro Gln Phe  Lys Lys Val
    1115                1120                1125

Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe Thr Gln  Pro Leu Tyr
    1130                1135                1140

Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu Leu Gly  Pro Tyr Ile
    1145                1150                1155

Arg Ala  Glu Val Glu Asp Asn  Ile Met Val Thr Phe  Arg Asn Gln
    1160                1165                1170

Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser Leu Ile  Ser Tyr Glu
    1175                1180                1185

Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg Lys Asn  Phe Val Lys
    1190                1195                1200

Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys Val Gln  His His Met
    1205                1210                1215

Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys Ala Trp  Ala Tyr Phe
    1220                1225                1230

Ser Asp  Val Asp Leu Glu Lys  Asp Val His Ser Gly  Leu Ile Gly
    1235                1240                1245

Pro Leu  Leu Val Cys His Thr  Asn Thr Leu Asn Pro  Ala His Gly
    1250                1255                1260
```

```
Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu Phe Phe  Thr Ile Phe
    1265                1270                1275

Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu Asn Met  Glu Arg Asn
    1280                1285                1290

Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu Asp Pro  Thr Phe Lys
    1295                1300                1305

Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly Tyr Ile  Met Asp Thr
    1310                1315                1320

Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln Arg Ile  Arg Trp Tyr
    1325                1330                1335

Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile His Ser  Ile His Phe
    1340                1345                1350

Ser Gly  His Val Phe Thr Val  Arg Lys Lys Glu Glu  Tyr Lys Met
    1355                1360                1365

Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe Glu Thr  Val Glu Met
    1370                1375                1380

Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val Glu Cys  Leu Ile Gly
    1385                1390                1395

Glu His  Leu His Ala Gly Met  Ser Thr Leu Phe Leu  Val Tyr Ser
    1400                1405                1410

Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala Ser Gly  His Ile Arg
    1415                1420                1425

Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr Gly Gln  Trp Ala Pro
    1430                1435                1440

Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser Ile Asn  Ala Trp Ser
    1445                1450                1455

Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val Asp Leu  Leu Ala Pro
    1460                1465                1470
```

```
Met Ile  Ile His Gly Ile Lys  Thr Gln Gly Ala Arg  Gln Lys Phe
    1475                 1480                 1485

Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile Met Tyr  Ser Leu Asp
    1490                 1495                 1500

Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn Ser Thr  Gly Thr Leu
    1505                 1510                 1515

Met Val  Phe Phe Gly Asn Val  Asp Ser Ser Gly Ile  Lys His Asn
    1520                 1525                 1530

Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr Ile Arg  Leu His Pro
    1535                 1540                 1545

Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg Met Glu  Leu Met Gly
    1550                 1555                 1560

Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu Gly Met  Glu Ser Lys
    1565                 1570                 1575

Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser Ser Tyr  Phe Thr Asn
    1580                 1585                 1590

Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala Arg Leu  His Leu Gln
    1595                 1600                 1605

Gly Arg  Ser Asn Ala Trp Arg  Pro Gln Val Asn Asn  Pro Lys Glu
    1610                 1615                 1620

Trp Leu  Gln Val Asp Phe Gln  Lys Thr Met Lys Val  Thr Gly Val
    1625                 1630                 1635

Thr Thr  Gln Gly Val Lys Ser  Leu Leu Thr Ser Met  Tyr Val Lys
    1640                 1645                 1650

Glu Phe  Leu Ile Ser Ser Ser  Gln Asp Gly His Gln  Trp Thr Leu
    1655                 1660                 1665

Phe Phe  Gln Asn Gly Lys Val  Lys Val Phe Gln Gly  Asn Gln Asp
```

```
    1670                1675                1680

Ser Phe  Thr Pro Val Val Asn  Ser Leu Asp Pro Pro  Leu Leu Thr
    1685                1690                1695

Arg Tyr  Leu Arg Ile His Pro  Gln Ser Trp Val His  Gln Ile Ala
    1700                1705                1710

Leu Arg  Met Glu Val Leu Gly  Cys Glu Ala Gln Asp  Leu Tyr Lys
    1715                1720                1725

Leu Thr  Arg Ala Glu Thr Gly  Gly Ala Ser Pro Gly  Thr Ser Ser
    1730                1735                1740

Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    1745                1750                1755

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Thr
    1760                1765                1770

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    1775                1780                1785

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    1790                1795                1800

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1805                1810                1815

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1820                1825                1830

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1835                1840                1845

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1850                1855                1860

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1865                1870                1875
```

```
Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1880                1885                1890

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1895                1900                1905

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1910                1915                1920

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1925                1930                1935

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser
    1940                1945                1950

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ser  Ser Thr Pro
    1955                1960                1965

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1970                1975                1980

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    1985                1990                1995

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    2000                2005                2010

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    2015                2020                2025

Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2030                2035                2040

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2045                2050                2055

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    2060                2065                2070

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Thr  Pro Gly Ser
    2075                2080                2085
```

```
Gly Thr  Ala Ser Ser Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2090                 2095                 2100

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2105                 2110                 2115

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ser
    2120                 2125                 2130

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    2135                 2140                 2145

Ser Gly  Ala Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2150                 2155                 2160

Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly Thr Ala  Ser Ser Ser
    2165                 2170                 2175

Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr Gly Ser  Pro Gly Ser
    2180                 2185                 2190

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    2195                 2200                 2205

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    2210                 2215                 2220

Gly Thr  Gly Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2225                 2230                 2235

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    2240                 2245                 2250

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ala  Ser Pro Gly
    2255                 2260                 2265

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    2270                 2275                 2280

Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr Ser Ser  Thr Gly Ser
    2285                 2290                 2295
```

```
Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    2300                 2305                 2310

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    2315                 2320                 2325

Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    2330                 2335                 2340

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    2345                 2350                 2355

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    2360                 2365                 2370

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
    2375                 2380                 2385

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    2390                 2395                 2400

Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    2405                 2410                 2415

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Thr
    2420                 2425                 2430

Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro Gly Ser  Ser Thr Pro
    2435                 2440                 2445

Ser Gly  Ala Thr Gly Ser Pro  Gly Ser Ser Pro Ser  Ala Ser Thr
    2450                 2455                 2460

Gly Thr  Gly Pro Gly Ser Ser  Pro Ser Ala Ser Thr  Gly Thr Gly
    2465                 2470                 2475

Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr Gly Ser  Pro Gly Ala
    2480                 2485                 2490

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ser  Ser Thr Pro
```

2495 2500 2505

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr
2510 2515 2520

Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
2525 2530 2535

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr
2540 2545 2550

Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro
2555 2560 2565

Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
2570 2575 2580

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
2585 2590 2595

Pro

<210> 1588
<211> 1763
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1588
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

```
Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
```

```
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495
```

```
His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720
```

```
Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940
```

```
Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960


Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975


Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990


Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005


Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020


Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035


Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050


Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065


Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080


Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095


Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110


Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125


Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140


Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
```

1145 1150 1155

Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro
1160 1165 1170

Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His
1175 1180 1185

Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr
1190 1195 1200

Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp
1205 1210 1215

Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe
1220 1225 1230

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

Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser
1250 1255 1260

Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn
1265 1270 1275

Ser Cys Ser Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp
1280 1285 1290

Ala Gln Ile Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr
1295 1300 1305

Trp Ser Pro Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn
1310 1315 1320

Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val
1325 1330 1335

Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly
1340 1345 1350

```
Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                 1360                 1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                 1375                 1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                 1390                 1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                 1405                 1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                 1420                 1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Lys Leu  Thr Arg Ala
    1430                 1435                 1440

Glu Thr  Gly Ala Gly Ser Pro  Gly Ala Glu Thr Ala  Pro Gly Ala
    1445                 1450                 1455

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ala  Ser Pro Gly
    1460                 1465                 1470

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1475                 1480                 1485

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1490                 1495                 1500

Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser Ser Ser  Pro Gly Ser
    1505                 1510                 1515

Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro Gly Thr  Pro Gly Ser
    1520                 1525                 1530

Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser Thr Pro  Ser Gly Ala
    1535                 1540                 1545

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1550                 1555                 1560
```

```
Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser
    1565                1570                1575

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1580                1585                1590

Thr Ser  Ser Thr Gly Ser Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1595                1600                1605

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1610                1615                1620

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ser
    1625                1630                1635

Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro Gly Ala  Ser Pro Gly
    1640                1645                1650

Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser Pro Gly  Thr Ser Ser
    1655                1660                1665

Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1670                1675                1680

Pro Gly  Ser Ser Pro Ser Ala  Ser Thr Gly Thr Gly  Pro Gly Ala
    1685                1690                1695

Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro Gly Ser  Ser Pro Ser
    1700                1705                1710

Ala Ser  Thr Gly Thr Gly Pro  Gly Thr Pro Gly Ser  Gly Thr Ala
    1715                1720                1725

Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser Gly Ala  Thr Gly Ser
    1730                1735                1740

Gly Ala  Glu Thr Ala Glu Gln  Lys Leu Ile Ser Glu  Glu Asp Leu
    1745                1750                1755

Ser Pro  Ala Thr Gly
    1760
```

<210> 1589
<211> 2310
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1589
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

```
Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400
```

```
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
```

```
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830
```

```
Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050
```

```
Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260
```

```
Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Lys Leu  Thr Arg Ala
    1430                1435                1440

Glu Thr  Gly Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1445                1450                1455

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ser Ser
```

1460 1465 1470

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly
1475 1480 1485

Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr
1490 1495 1500

Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
1505 1510 1515

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
1520 1525 1530

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
1535 1540 1545

Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser
1550 1555 1560

Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
1565 1570 1575

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
1580 1585 1590

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser
1595 1600 1605

Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr
1610 1615 1620

Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
1625 1630 1635

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
1640 1645 1650

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala
1655 1660 1665

```
Ser Thr  Gly Thr Gly Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1670                 1675                 1680

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
    1685                 1690                 1695

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1700                 1705                 1710

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    1715                 1720                 1725

Ser Ser  Thr Gly Ser Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1730                 1735                 1740

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1745                 1750                 1755

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1760                 1765                 1770

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Pro Ser Ala
    1775                 1780                 1785

Ser Thr  Gly Thr Gly Pro Gly  Thr Pro Gly Ser Gly  Thr Ala Ser
    1790                 1795                 1800

Ser Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1805                 1810                 1815

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1820                 1825                 1830

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1835                 1840                 1845

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1850                 1855                 1860

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1865                 1870                 1875
```

```
Gly Thr  Pro Gly Ser Gly Thr  Ala Ser Ser Ser Pro  Gly Ser Ser
    1880                 1885                 1890

Thr Pro  Ser Gly Ala Thr Gly  Ser Pro Gly Ser Ser  Thr Pro Ser
    1895                 1900                 1905

Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    1910                 1915                 1920

Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    1925                 1930                 1935

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    1940                 1945                 1950

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly
    1955                 1960                 1965

Thr Ala  Ser Ser Ser Pro Gly  Ala Ser Pro Gly Thr  Ser Ser Thr
    1970                 1975                 1980

Gly Ser  Pro Gly Ala Ser Pro  Gly Thr Ser Ser Thr  Gly Ser Pro
    1985                 1990                 1995

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ala Ser
    2000                 2005                 2010

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly
    2015                 2020                 2025

Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    2030                 2035                 2040

Gly Ser  Pro Gly Thr Pro Gly  Ser Gly Thr Ala Ser  Ser Ser Pro
    2045                 2050                 2055

Gly Ser  Ser Thr Pro Ser Gly  Ala Thr Gly Ser Pro  Gly Thr Pro
    2060                 2065                 2070

Gly Ser  Gly Thr Ala Ser Ser  Ser Pro Gly Ser Ser  Thr Pro Ser
    2075                 2080                 2085
```

```
Gly Ala  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    2090                2095                2100

Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    2105                2110                2115

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser
    2120                2125                2130

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Thr Pro  Gly Ser Gly
    2135                2140                2145

Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    2150                2155                2160

Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    2165                2170                2175

Gly Ser  Ser Pro Ser Ala Ser  Thr Gly Thr Gly Pro  Gly Ala Ser
    2180                2185                2190

Pro Gly  Thr Ser Ser Thr Gly  Ser Pro Gly Ala Ser  Pro Gly Thr
    2195                2200                2205

Ser Ser  Thr Gly Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    2210                2215                2220

Gly Ser  Pro Gly Ser Ser Pro  Ser Ala Ser Thr Gly  Thr Gly Pro
    2225                2230                2235

Gly Ala  Ser Pro Gly Thr Ser  Ser Thr Gly Ser Pro  Gly Ser Ser
    2240                2245                2250

Pro Ser  Ala Ser Thr Gly Thr  Gly Pro Gly Thr Pro  Gly Ser Gly
    2255                2260                2265

Thr Ala  Ser Ser Ser Pro Gly  Ser Ser Thr Pro Ser  Gly Ala Thr
    2270                2275                2280

Gly Ser  Pro Gly Ser Ser Thr  Pro Ser Gly Ala Thr  Gly Ser Pro
```

2285 2290 2295

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
2300 2305 2310

<210> 1590
<211> 2310
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1590
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

```
His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
```

```
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590
```

```
Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Ala Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815
```

```
Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035
```

```
Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

Gly Asn  Val Asp Ser Ser Gly  Ile Lys His Asn Ile  Phe Asn Pro
```

```
    1235                1240                1245

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380

Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395

Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410

Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425

Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr Lys Leu  Thr Arg Ala
    1430                1435                1440
```

```
Glu Thr  Gly Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1445                1450                1455

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1460                1465                1470

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1475                1480                1485

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1490                1495                1500

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1505                1510                1515

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1520                1525                1530

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Ser Glu  Pro Ala Thr
    1535                1540                1545

Ser Gly  Ser Glu Thr Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1550                1555                1560

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1565                1570                1575

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1580                1585                1590

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Ser Pro  Ala Gly Ser
    1595                1600                1605

Pro Thr  Ser Thr Glu Glu Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1610                1615                1620

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1625                1630                1635

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    1640                1645                1650
```

```
Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    1655                 1660                 1665

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1670                 1675                 1680

Glu Thr  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1685                 1690                 1695

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1700                 1705                 1710

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala
    1715                 1720                 1725

Thr Pro  Glu Ser Gly Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1730                 1735                 1740

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1745                 1750                 1755

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    1760                 1765                 1770

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    1775                 1780                 1785

Ser Glu  Gly Ser Ala Pro Gly  Thr Ser Thr Glu Pro  Ser Glu Gly
    1790                 1795                 1800

Ser Ala  Pro Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1805                 1810                 1815

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1820                 1825                 1830

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    1835                 1840                 1845

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1850                 1855                 1860
```

```
Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    1865                1870                1875

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Ser Glu
    1880                1885                1890

Pro Ala  Thr Ser Gly Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala
    1895                1900                1905

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    1910                1915                1920

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    1925                1930                1935

Gly Thr  Ser Thr Glu Pro Ser  Glu Gly Ser Ala Pro  Gly Thr Ser
    1940                1945                1950

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    1955                1960                1965

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    1970                1975                1980

Thr Glu  Glu Gly Ser Pro Ala  Gly Ser Pro Thr Ser  Thr Glu Glu
    1985                1990                1995

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    2000                2005                2010

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Glu Ser Ala
    2015                2020                2025

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    2030                2035                2040

Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2045                2050                2055

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
```

```
    2060                2065                2070

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Thr Glu Pro
    2075                2080                2085

Ser Glu  Gly Ser Ala Pro Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    2090                2095                2100

Thr Glu  Glu Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Gly Pro
    2105                2110                2115

Gly Ser  Glu Pro Ala Thr Ser  Gly Ser Glu Thr Pro  Gly Thr Ser
    2120                2125                2130

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Ser Pro  Ala Gly Ser
    2135                2140                2145

Pro Thr  Ser Thr Glu Glu Gly  Ser Pro Ala Gly Ser  Pro Thr Ser
    2150                2155                2160

Thr Glu  Glu Gly Thr Ser Thr  Glu Pro Ser Glu Gly  Ser Ala Pro
    2165                2170                2175

Gly Thr  Ser Glu Ser Ala Thr  Pro Glu Ser Gly Pro  Gly Thr Ser
    2180                2185                2190

Glu Ser  Ala Thr Pro Glu Ser  Gly Pro Gly Thr Ser  Glu Ser Ala
    2195                2200                2205

Thr Pro  Glu Ser Gly Pro Gly  Ser Glu Pro Ala Thr  Ser Gly Ser
    2210                2215                2220

Glu Thr  Pro Gly Ser Glu Pro  Ala Thr Ser Gly Ser  Glu Thr Pro
    2225                2230                2235

Gly Ser  Pro Ala Gly Ser Pro  Thr Ser Thr Glu Glu  Gly Thr Ser
    2240                2245                2250

Thr Glu  Pro Ser Glu Gly Ser  Ala Pro Gly Thr Ser  Thr Glu Pro
    2255                2260                2265
```

Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
    2270   2275   2280

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
    2285   2290   2295

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    2300   2305   2310

<210> 1591
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 1591
Ala Ser Thr Gly Glu Thr Gly Glu Thr Gly Glu
1   5   10

<210> 1592
<211> 2332
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1592
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
```

```
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735
```

```
Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro Ser Thr Arg
            740                 745                 750

Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp Ile Glu Lys
        755                 760                 765

Thr Asp Pro Trp Phe Ala His Arg Thr Pro Met Pro Lys Ile Gln Asn
    770                 775                 780

Val Ser Ser Ser Asp Leu Leu Met Leu Leu Arg Gln Ser Pro Thr Pro
785                 790                 795                 800

His Gly Leu Ser Leu Ser Asp Leu Gln Glu Ala Lys Tyr Glu Thr Phe
                805                 810                 815

Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn Ser Leu Ser
            820                 825                 830

Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly Asp Met Val
        835                 840                 845

Phe Thr Pro Glu Ser Gly Leu Gln Leu Arg Leu Asn Glu Lys Leu Gly
    850                 855                 860

Thr Thr Ala Ala Thr Glu Leu Lys Lys Leu Asp Phe Lys Val Ser Ser
865                 870                 875                 880

Thr Ser Asn Asn Leu Ile Ser Thr Ile Pro Ser Asp Asn Leu Ala Ala
                885                 890                 895

Gly Thr Asp Asn Thr Ser Ser Leu Gly Pro Pro Ser Met Pro Val His
            900                 905                 910

Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly Lys Lys Ser Ser Pro
        915                 920                 925

Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu Asn Asn Asp
    930                 935                 940

Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu Ser Ser Trp
945                 950                 955                 960
```

```
Gly Lys Asn Val Ser Ser Thr Glu Ser Gly Arg Leu Phe Lys Gly Lys
               965                 970                 975

Arg Ala His Gly Pro Ala Leu Leu Thr Lys Asp Asn Ala Leu Phe Lys
           980                 985                 990

Val Ser Ile Ser Leu Leu Lys Thr  Asn Lys Thr Ser Asn  Asn Ser Ala
        995                1000                1005

Thr Asn  Arg Lys Thr His Ile  Asp Gly Pro Ser Leu  Leu Ile Glu
    1010                1015                1020

Asn Ser  Pro Ser Val Trp Gln  Asn Ile Leu Glu Ser  Asp Thr Glu
    1025                1030                1035

Phe Lys  Lys Val Thr Pro Leu  Ile His Asp Arg Met  Leu Met Asp
    1040                1045                1050

Lys Asn  Ala Thr Ala Leu Arg  Leu Asn His Met Ser  Asn Lys Thr
    1055                1060                1065

Thr Ser  Ser Lys Asn Met Glu  Met Val Gln Gln Lys  Lys Glu Gly
    1070                1075                1080

Pro Ile  Pro Pro Asp Ala Gln  Asn Pro Asp Met Ser  Phe Phe Lys
    1085                1090                1095

Met Leu  Phe Leu Pro Glu Ser  Ala Arg Trp Ile Gln  Arg Thr His
    1100                1105                1110

Gly Lys  Asn Ser Leu Asn Ser  Gly Gln Gly Pro Ser  Pro Lys Gln
    1115                1120                1125

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

Leu Ser  Glu Lys Asn Lys Val  Val Val Gly Lys Gly  Glu Phe Thr
    1145                1150                1155

Lys Asp  Val Gly Leu Lys Glu  Met Val Phe Pro Ser  Ser Arg Asn
    1160                1165                1170
```

```
Leu Phe  Leu Thr Asn Leu Asp  Asn Leu His Glu Asn  Asn Thr His
    1175                1180                1185

Asn Gln  Glu Lys Lys Ile Gln  Glu Glu Ile Glu Lys  Lys Glu Thr
    1190                1195                1200

Leu Ile  Gln Glu Asn Val Val  Leu Pro Gln Ile His  Thr Val Thr
    1205                1210                1215

Gly Thr  Lys Asn Phe Met Lys  Asn Leu Phe Leu Leu  Ser Thr Arg
    1220                1225                1230

Gln Asn  Val Glu Gly Ser Tyr  Asp Gly Ala Tyr Ala  Pro Val Leu
    1235                1240                1245

Gln Asp  Phe Arg Ser Leu Asn  Asp Ser Thr Asn Arg  Thr Lys Lys
    1250                1255                1260

His Thr  Ala His Phe Ser Lys  Lys Gly Glu Glu Glu  Asn Leu Glu
    1265                1270                1275

Gly Leu  Gly Asn Gln Thr Lys  Gln Ile Val Glu Lys  Tyr Ala Cys
    1280                1285                1290

Thr Thr  Arg Ile Ser Pro Asn  Thr Ser Gln Gln Asn  Phe Val Thr
    1295                1300                1305

Gln Arg  Ser Lys Arg Ala Leu  Lys Gln Phe Arg Leu  Pro Leu Glu
    1310                1315                1320

Glu Thr  Glu Leu Glu Lys Arg  Ile Ile Val Asp Asp  Thr Ser Thr
    1325                1330                1335

Gln Trp  Ser Lys Asn Met Lys  His Leu Thr Pro Ser  Thr Leu Thr
    1340                1345                1350

Gln Ile  Asp Tyr Asn Glu Lys  Glu Lys Gly Ala Ile  Thr Gln Ser
    1355                1360                1365

Pro Leu  Ser Asp Cys Leu Thr  Arg Ser His Ser Ile  Pro Gln Ala
```

```
    1370                1375                1380

Asn Arg  Ser Pro Leu Pro Ile  Ala Lys Val Ser Ser  Phe Pro Ser
    1385                1390                1395

Ile Arg  Pro Ile Tyr Leu Thr  Arg Val Leu Phe Gln  Asp Asn Ser
    1400                1405                1410

Ser His  Leu Pro Ala Ala Ser  Tyr Arg Lys Lys Asp  Ser Gly Val
    1415                1420                1425

Gln Glu  Ser Ser His Phe Leu  Gln Gly Ala Lys Lys  Asn Asn Leu
    1430                1435                1440

Ser Leu  Ala Ile Leu Thr Leu  Glu Met Thr Gly Asp  Gln Arg Glu
    1445                1450                1455

Val Gly  Ser Leu Gly Thr Ser  Ala Thr Asn Ser Val  Thr Tyr Lys
    1460                1465                1470

Lys Val  Glu Asn Thr Val Leu  Pro Lys Pro Asp Leu  Pro Lys Thr
    1475                1480                1485

Ser Gly  Lys Val Glu Leu Leu  Pro Lys Val His Ile  Tyr Gln Lys
    1490                1495                1500

Asp Leu  Phe Pro Thr Glu Thr  Ser Asn Gly Ser Pro  Gly His Leu
    1505                1510                1515

Asp Leu  Val Glu Gly Ser Leu  Leu Gln Gly Thr Glu  Gly Ala Ile
    1520                1525                1530

Lys Trp  Asn Glu Ala Asn Arg  Pro Gly Lys Val Pro  Phe Leu Arg
    1535                1540                1545

Val Ala  Thr Glu Ser Ser Ala  Lys Thr Pro Ser Lys  Leu Leu Asp
    1550                1555                1560

Pro Leu  Ala Trp Asp Asn His  Tyr Gly Thr Gln Ile  Pro Lys Glu
    1565                1570                1575
```

```
Glu Trp  Lys Ser Gln Glu Lys  Ser Pro Glu Lys Thr  Ala Phe Lys
    1580                 1585                 1590

Lys Lys  Asp Thr Ile Leu Ser  Leu Asn Ala Cys Glu  Ser Asn His
    1595                 1600                 1605

Ala Ile  Ala Ala Ile Asn Glu  Gly Gln Asn Lys Pro  Glu Ile Glu
    1610                 1615                 1620

Val Thr  Trp Ala Lys Gln Gly  Arg Thr Glu Arg Leu  Cys Ser Gln
    1625                 1630                 1635

Asn Pro  Pro Val Leu Lys Arg  His Gln Arg Glu Ile  Thr Arg Thr
    1640                 1645                 1650

Thr Leu  Gln Ser Asp Gln Glu  Glu Ile Asp Tyr Asp  Asp Thr Ile
    1655                 1660                 1665

Ser Val  Glu Met Lys Lys Glu  Asp Phe Asp Ile Tyr  Asp Glu Asp
    1670                 1675                 1680

Glu Asn  Gln Ser Pro Arg Ser  Phe Gln Lys Lys Thr  Arg His Tyr
    1685                 1690                 1695

Phe Ile  Ala Ala Val Glu Arg  Leu Trp Asp Tyr Gly  Met Ser Ser
    1700                 1705                 1710

Ser Pro  His Val Leu Arg Asn  Arg Ala Gln Ser Gly  Ser Val Pro
    1715                 1720                 1725

Gln Phe  Lys Lys Val Val Phe  Gln Glu Phe Thr Asp  Gly Ser Phe
    1730                 1735                 1740

Thr Gln  Pro Leu Tyr Arg Gly  Glu Leu Asn Glu His  Leu Gly Leu
    1745                 1750                 1755

Leu Gly  Pro Tyr Ile Arg Ala  Glu Val Glu Asp Asn  Ile Met Val
    1760                 1765                 1770

Thr Phe  Arg Asn Gln Ala Ser  Arg Pro Tyr Ser Phe  Tyr Ser Ser
    1775                 1780                 1785
```

```
Leu Ile  Ser Tyr Glu Glu Asp  Gln Arg Gln Gly Ala  Glu Pro Arg
    1790                1795                1800

Lys Asn  Phe Val Lys Pro Asn  Glu Thr Lys Thr Tyr  Phe Trp Lys
    1805                1810                1815

Val Gln  His His Met Ala Pro  Thr Lys Asp Glu Phe  Asp Cys Lys
    1820                1825                1830

Ala Trp  Ala Tyr Phe Ser Asp  Val Asp Leu Glu Lys  Asp Val His
    1835                1840                1845

Ser Gly  Leu Ile Gly Pro Leu  Leu Val Cys His Thr  Asn Thr Leu
    1850                1855                1860

Asn Pro  Ala His Gly Arg Gln  Val Thr Val Gln Glu  Phe Ala Leu
    1865                1870                1875

Phe Phe  Thr Ile Phe Asp Glu  Thr Lys Ser Trp Tyr  Phe Thr Glu
    1880                1885                1890

Asn Met  Glu Arg Asn Cys Arg  Ala Pro Cys Asn Ile  Gln Met Glu
    1895                1900                1905

Asp Pro  Thr Phe Lys Glu Asn  Tyr Arg Phe His Ala  Ile Asn Gly
    1910                1915                1920

Tyr Ile  Met Asp Thr Leu Pro  Gly Leu Val Met Ala  Gln Asp Gln
    1925                1930                1935

Arg Ile  Arg Trp Tyr Leu Leu  Ser Met Gly Ser Asn  Glu Asn Ile
    1940                1945                1950

His Ser  Ile His Phe Ser Gly  His Val Phe Thr Val  Arg Lys Lys
    1955                1960                1965

Glu Glu  Tyr Lys Met Ala Leu  Tyr Asn Leu Tyr Pro  Gly Val Phe
    1970                1975                1980

Glu Thr  Val Glu Met Leu Pro  Ser Lys Ala Gly Ile  Trp Arg Val
    1985                1990                1995
```

```
Glu Cys  Leu Ile Gly Glu His  Leu His Ala Gly Met  Ser Thr Leu
    2000                2005                2010

Phe Leu  Val Tyr Ser Asn Lys  Cys Gln Thr Pro Leu  Gly Met Ala
    2015                2020                2025

Ser Gly  His Ile Arg Asp Phe  Gln Ile Thr Ala Ser  Gly Gln Tyr
    2030                2035                2040

Gly Gln  Trp Ala Pro Lys Leu  Ala Arg Leu His Tyr  Ser Gly Ser
    2045                2050                2055

Ile Asn  Ala Trp Ser Thr Lys  Glu Pro Phe Ser Trp  Ile Lys Val
    2060                2065                2070

Asp Leu  Leu Ala Pro Met Ile  Ile His Gly Ile Lys  Thr Gln Gly
    2075                2080                2085

Ala Arg  Gln Lys Phe Ser Ser  Leu Tyr Ile Ser Gln  Phe Ile Ile
    2090                2095                2100

Met Tyr  Ser Leu Asp Gly Lys  Lys Trp Gln Thr Tyr  Arg Gly Asn
    2105                2110                2115

Ser Thr  Gly Thr Leu Met Val  Phe Phe Gly Asn Val  Asp Ser Ser
    2120                2125                2130

Gly Ile  Lys His Asn Ile Phe  Asn Pro Pro Ile Ile  Ala Arg Tyr
    2135                2140                2145

Ile Arg  Leu His Pro Thr His  Tyr Ser Ile Arg Ser  Thr Leu Arg
    2150                2155                2160

Met Glu  Leu Met Gly Cys Asp  Leu Asn Ser Cys Ser  Met Pro Leu
    2165                2170                2175

Gly Met  Glu Ser Lys Ala Ile  Ser Asp Ala Gln Ile  Thr Ala Ser
    2180                2185                2190

Ser Tyr  Phe Thr Asn Met Phe  Ala Thr Trp Ser Pro  Ser Lys Ala
```

2195 2200 2205

Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp Arg Pro Gln Val
2210 2215 2220

Asn Asn Pro Lys Glu Trp Leu Gln Val Asp Phe Gln Lys Thr Met
2225 2230 2235

Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser Leu Leu Thr
2240 2245 2250

Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly
2255 2260 2265

His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val Lys Val Phe
2270 2275 2280

Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp
2285 2290 2295

Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp
2300 2305 2310

Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala
2315 2320 2325

Gln Asp Leu Tyr
2330

<210> 1593
<211> 1438
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1593
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

```
Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
```

```
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460
```

```
Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685
```

```
Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910
```

```
Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
```

```
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320
```

```
Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335


Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350


Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365


Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380


Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1430                1435


<210> 1594
<211> 1438
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1594
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1               5                   10                  15


Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20                  25                  30


Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35                  40                  45


Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
```

```
    50                  55                  60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65                  70                  75                  80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270
```

```
Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495
```

```
His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720
```

```
Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
```

```
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960

Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140
```

```
Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170

Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350
```

Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile
    1355   1360   1365

Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn
    1370   1375   1380

Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro
    1385   1390   1395

Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg
    1400   1405   1410

Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu
    1415   1420   1425

Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr
    1430   1435

<210> 1595
<211> 1438
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1595
Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1   5   10   15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
            20   25   30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
        35   40   45

Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
    50   55   60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65   70   75   80

```
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
                85                  90                  95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
            100                 105                 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
        115                 120                 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
    130                 135                 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145                 150                 155                 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
                165                 170                 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
            180                 185                 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
        195                 200                 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
    210                 215                 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225                 230                 235                 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
                245                 250                 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
            260                 265                 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
        275                 280                 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
    290                 295                 300
```

```
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305                 310                 315                 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
                325                 330                 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
            340                 345                 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
        355                 360                 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
    370                 375                 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385                 390                 395                 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
                405                 410                 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
            420                 425                 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
        435                 440                 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
    450                 455                 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465                 470                 475                 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
                485                 490                 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
            500                 505                 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
        515                 520                 525
```

```
Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
    530                 535                 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545                 550                 555                 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
                565                 570                 575

Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
            580                 585                 590

Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
        595                 600                 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
    610                 615                 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625                 630                 635                 640

Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
                645                 650                 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
            660                 665                 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
        675                 680                 685

Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
    690                 695                 700

Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
705                 710                 715                 720

Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
                725                 730                 735

Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
```

```
            740                 745                 750

Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
        755                 760                 765

Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
    770                 775                 780

Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
785                 790                 795                 800

Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
                805                 810                 815

Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
            820                 825                 830

Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
        835                 840                 845

Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
    850                 855                 860

Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
865                 870                 875                 880

Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
                885                 890                 895

Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
            900                 905                 910

Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
        915                 920                 925

Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
    930                 935                 940

Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
945                 950                 955                 960
```

```
Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
                965                 970                 975

Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
            980                 985                 990

Lys Ser Trp Tyr Phe Thr Glu Asn  Met Glu Arg Asn Cys  Arg Ala Pro
        995                 1000                1005

Cys Asn  Ile Gln Met Glu Asp  Pro Thr Phe Lys Glu  Asn Tyr Arg
    1010                1015                1020

Phe His  Ala Ile Asn Gly Tyr  Ile Met Asp Thr Leu  Pro Gly Leu
    1025                1030                1035

Val Met  Ala Gln Asp Gln Arg  Ile Arg Trp Tyr Leu  Leu Ser Met
    1040                1045                1050

Gly Ser  Asn Glu Asn Ile His  Ser Ile His Phe Ser  Gly His Val
    1055                1060                1065

Phe Thr  Val Arg Lys Lys Glu  Glu Tyr Lys Met Ala  Leu Tyr Asn
    1070                1075                1080

Leu Tyr  Pro Gly Val Phe Glu  Thr Val Glu Met Leu  Pro Ser Lys
    1085                1090                1095

Ala Gly  Ile Trp Arg Val Glu  Cys Leu Ile Gly Glu  His Leu His
    1100                1105                1110

Ala Gly  Met Ser Thr Leu Phe  Leu Val Tyr Ser Asn  Lys Cys Gln
    1115                1120                1125

Thr Pro  Leu Gly Met Ala Ser  Gly His Ile Arg Asp  Phe Gln Ile
    1130                1135                1140

Thr Ala  Ser Gly Gln Tyr Gly  Gln Trp Ala Pro Lys  Leu Ala Arg
    1145                1150                1155

Leu His  Tyr Ser Gly Ser Ile  Asn Ala Trp Ser Thr  Lys Glu Pro
    1160                1165                1170
```

```
Phe Ser  Trp Ile Lys Val Asp  Leu Leu Ala Pro Met  Ile Ile His
    1175                1180                1185

Gly Ile  Lys Thr Gln Gly Ala  Arg Gln Lys Phe Ser  Ser Leu Tyr
    1190                1195                1200

Ile Ser  Gln Phe Ile Ile Met  Tyr Ser Leu Asp Gly  Lys Lys Trp
    1205                1210                1215

Gln Thr  Tyr Arg Gly Asn Ser  Thr Gly Thr Leu Met  Val Phe Phe
    1220                1225                1230

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

Pro Ile  Ile Ala Arg Tyr Ile  Arg Leu His Pro Thr  His Tyr Ser
    1250                1255                1260

Ile Arg  Ser Thr Leu Arg Met  Glu Leu Met Gly Cys  Asp Leu Asn
    1265                1270                1275

Ser Cys  Ser Met Pro Leu Gly  Met Glu Ser Lys Ala  Ile Ser Asp
    1280                1285                1290

Ala Gln  Ile Thr Ala Ser Ser  Tyr Phe Thr Asn Met  Phe Ala Thr
    1295                1300                1305

Trp Ser  Pro Ser Lys Ala Arg  Leu His Leu Gln Gly  Arg Ser Asn
    1310                1315                1320

Ala Trp  Arg Pro Gln Val Asn  Asn Pro Lys Glu Trp  Leu Gln Val
    1325                1330                1335

Asp Phe  Gln Lys Thr Met Lys  Val Thr Gly Val Thr  Thr Gln Gly
    1340                1345                1350

Val Lys  Ser Leu Leu Thr Ser  Met Tyr Val Lys Glu  Phe Leu Ile
    1355                1360                1365

Ser Ser  Ser Gln Asp Gly His  Gln Trp Thr Leu Phe  Phe Gln Asn
    1370                1375                1380
```

```
Gly Lys  Val Lys Val Phe Gln  Gly Asn Gln Asp Ser  Phe Thr Pro
    1385                1390                1395


Val Val  Asn Ser Leu Asp Pro  Pro Leu Leu Thr Arg  Tyr Leu Arg
    1400                1405                1410


Ile His  Pro Gln Ser Trp Val  His Gln Ile Ala Leu  Arg Met Glu
    1415                1420                1425


Val Leu  Gly Cys Glu Ala Gln  Asp Leu Tyr
    1430                1435


<210> 1596
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1596
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1               5                   10                  15


Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
            20                  25                  30


Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        35                  40                  45


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    50                  55                  60


Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65                  70                  75                  80


Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                85                  90                  95


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            100                 105                 110
```

```
Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145                 150                 155                 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165                 170                 175

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180                 185                 190

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        195                 200                 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    210                 215                 220

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                245                 250                 255

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    290                 295                 300

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335
```

```
Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            340                 345                 350

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                405                 410                 415

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        435                 440                 445

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            500                 505                 510

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        515                 520                 525

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    530                 535                 540

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
```

```
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            580                 585                 590

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        595                 600                 605

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
625                 630                 635                 640

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                645                 650                 655

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            660                 665                 670

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        675                 680                 685

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    690                 695                 700

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
705                 710                 715                 720

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
                725                 730                 735

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            740                 745                 750

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        755                 760                 765
```

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    770   775   780

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
785   790   795   800

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                805   810   815

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            820   825   830

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        835   840   845

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    850   855   860

<210> 1597
<211> 576
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1597
Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
1   5   10   15

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
            20   25   30

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
        35   40   45

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    50   55   60

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
65   70   75   80

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser

```
                85                  90                  95

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
            100                 105                 110

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser
        115                 120                 125

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    130                 135                 140

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
145                 150                 155                 160

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
                165                 170                 175

Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
            180                 185                 190

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
        195                 200                 205

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
    210                 215                 220

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
225                 230                 235                 240

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
                245                 250                 255

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
            260                 265                 270

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
        275                 280                 285

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
    290                 295                 300
```

```
Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
305                 310                 315                 320

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
                325                 330                 335

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser
            340                 345                 350

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
        355                 360                 365

Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    370                 375                 380

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro
385                 390                 395                 400

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
                405                 410                 415

Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
            420                 425                 430

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro
        435                 440                 445

Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly
    450                 455                 460

Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
465                 470                 475                 480

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
                485                 490                 495

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser
            500                 505                 510

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
        515                 520                 525
```

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
530 535 540

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
545 550 555 560

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
565 570 575

<210> 1598
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1598
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1 5 10 15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
20 25 30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
35 40 45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
50 55 60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65 70 75 80

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
85 90 95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
100 105 110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
115 120 125

```
Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145                 150                 155                 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165                 170                 175

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180                 185                 190

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        195                 200                 205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    210                 215                 220

Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                245                 250                 255

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    290                 295                 300

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            340                 345                 350
```

```
Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                405                 410                 415

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        435                 440                 445

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            500                 505                 510

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        515                 520                 525

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    530                 535                 540

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575
```

```
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            580                 585                 590

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        595                 600                 605

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
625                 630                 635                 640

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                645                 650                 655

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            660                 665                 670

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        675                 680                 685

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    690                 695                 700

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
705                 710                 715                 720

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
                725                 730                 735

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            740                 745                 750

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        755                 760                 765

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    770                 775                 780

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
```

785 790 795 800

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
805 810 815

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
820 825 830

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
835 840 845

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
850 855 860

<210> 1599
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1599
Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
1 5 10 15

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
20 25 30

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
35 40 45

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
50 55 60

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
65 70 75 80

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
85 90 95

Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser
100 105 110

```
Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser
        115                 120                 125

Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser
    130                 135                 140

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser
145                 150                 155                 160

Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser
                165                 170                 175

Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
            180                 185                 190

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser
        195                 200                 205

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly
    210                 215                 220

Ala Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly
225                 230                 235                 240

Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser
                245                 250                 255

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
            260                 265                 270

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
        275                 280                 285


<210> 1600
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide
```

<400> 1600
Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Pro
1   5   10   15

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
            20   25   30

Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        35   40   45

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    50   55   60

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
65   70   75   80

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                85   90   95

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly
            100   105   110

Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115   120   125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130   135   140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145   150   155   160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
                165   170   175

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
            180   185   190

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
        195   200   205

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro Ser Ala Ser Thr
    210   215   220

```
Gly Thr Gly Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
225                 230                 235                 240


Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ala Ser Pro
                245                 250                 255


Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            260                 265                 270


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        275                 280                 285


Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro
    290                 295                 300


Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
305                 310                 315                 320


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                325                 330                 335


Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly
            340                 345                 350


Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        355                 360                 365


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    370                 375                 380


Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ser Ser Thr
385                 390                 395                 400


Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                405                 410                 415


Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
            420                 425                 430


Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
```

```
        435                 440                 445

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    450                 455                 460

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
465                 470                 475                 480

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                485                 490                 495

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
            500                 505                 510

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
        515                 520                 525

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
    530                 535                 540

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
545                 550                 555                 560

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
                565                 570                 575

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            580                 585                 590

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
        595                 600                 605

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
    610                 615                 620

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
625                 630                 635                 640

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
                645                 650                 655
```

```
Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
            660                 665                 670

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
        675                 680                 685

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
    690                 695                 700

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
705                 710                 715                 720

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser Pro
                725                 730                 735

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
            740                 745                 750

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
        755                 760                 765

Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Pro
    770                 775                 780

Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro Gly Thr Ser Ser
785                 790                 795                 800

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
                805                 810                 815

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
            820                 825                 830

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
        835                 840                 845

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    850                 855                 860
```

<210> 1601
<211> 144
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1601
Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ser Ser
1 5 10 15

Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Thr Pro Gly Ser Gly Thr
20 25 30

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
35 40 45

Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser
50 55 60

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr
65 70 75 80

Ala Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser
85 90 95

Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ala Ser
100 105 110

Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser
115 120 125

Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser
130 135 140

<210> 1602
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1602
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
            20                  25                  30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        35                  40                  45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
    50                  55                  60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65                  70                  75                  80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                85                  90                  95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
            100                 105                 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145                 150                 155                 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
```

225 230 235 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
245 250 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
260 265 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
275 280 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
290 295 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305 310 315 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
325 330 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
340 345 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
355 360 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
370 375 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385 390 395 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
405 410 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
420 425 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
435 440 445

```
Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545                 550                 555                 560

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            580                 585                 590

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    610                 615                 620

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                645                 650                 655

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670
```

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
675 680 685

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
690 695 700

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
705 710 715 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
725 730 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
740 745 750

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
755 760 765

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
770 775 780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
785 790 795 800

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
805 810 815

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
820 825 830

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
835 840 845

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
850 855 860

<210> 1603
<211> 576
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1603
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
100 105 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
115 120 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
130 135 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145 150 155 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
165 170 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
180 185 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
195 200 205

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430
```

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
435 440 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
450 455 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465 470 475 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
485 490 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
500 505 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
515 520 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
530 535 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545 550 555 560

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
565 570 575

<210> 1604
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1604
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

```
Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        35                  40                  45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
    50                  55                  60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65                  70                  75                  80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
                85                  90                  95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
            100                 105                 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
        115                 120                 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145                 150                 155                 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255
```

```
Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
```

```
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545                 550                 555                 560

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            580                 585                 590

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    610                 615                 620

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                645                 650                 655

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        675                 680                 685
```

```
Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    690                 695                 700

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
                725                 730                 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
    770                 775                 780

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                805                 810                 815

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            820                 825                 830

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    850                 855                 860


<210> 1605
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1605
Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
```

```
1               5                   10                  15

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
            20                  25                  30

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
        35                  40                  45

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
    50                  55                  60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
65                  70                  75                  80

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                85                  90                  95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
            100                 105                 110

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
        115                 120                 125

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
145                 150                 155                 160

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
                165                 170                 175

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            180                 185                 190

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
        195                 200                 205

Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
    210                 215                 220
```

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
225 230 235 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
245 250 255

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
260 265 270

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
275 280 285

<210> 1606
<211> 864
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1606
Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
1 5 10 15

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu
20 25 30

Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
35 40 45

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
50 55 60

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
65 70 75 80

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
85 90 95

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala
100 105 110

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro

```
        115                 120                 125

Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    130                 135                 140

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala
145                 150                 155                 160

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu
                165                 170                 175

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            180                 185                 190

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
        195                 200                 205

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
    210                 215                 220

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
225                 230                 235                 240

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
                245                 250                 255

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            260                 265                 270

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        275                 280                 285

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu
    290                 295                 300

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly
305                 310                 315                 320

Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
                325                 330                 335
```

```
Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
            340                 345                 350

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu
        355                 360                 365

Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    370                 375                 380

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr
385                 390                 395                 400

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                405                 410                 415

Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
            420                 425                 430

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
        435                 440                 445

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
    450                 455                 460

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
465                 470                 475                 480

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
                485                 490                 495

Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro
            500                 505                 510

Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
        515                 520                 525

Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala
    530                 535                 540

Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro
545                 550                 555                 560
```

```
Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                565                 570                 575

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
            580                 585                 590

Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        595                 600                 605

Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro
    610                 615                 620

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr
625                 630                 635                 640

Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr
                645                 650                 655

Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
            660                 665                 670

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu
        675                 680                 685

Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr
    690                 695                 700

Ser Thr Glu Glu Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
705                 710                 715                 720

Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu
                725                 730                 735

Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro
            740                 745                 750

Glu Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro
        755                 760                 765

Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Glu Pro
    770                 775                 780
```

```
Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly Ser Pro Thr
785                 790                 795                 800


Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
                805                 810                 815


Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Glu Pro
            820                 825                 830


Ala Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro
        835                 840                 845


Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro
    850                 855                 860


<210> 1607
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 1607
Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
1               5                   10                  15


Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
            20                  25                  30


Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
        35                  40                  45


Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
    50                  55                  60


Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
65                  70                  75                  80


Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
                85                  90                  95
```

Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly Ser Pro Ala Gly
100 105 110

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
115 120 125

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
130 135 140

<210> 1608
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1608
Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly
1 5 10 15

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly
20 25 30

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
35 40 45

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
50 55 60

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
65 70 75 80

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
85 90 95

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
100 105 110

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
115 120 125

Ser Gly Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
130 135 140

<210> 1609
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1609
Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser
1 5 10 15

Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser
20 25 30

Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly
35 40 45

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
50 55 60

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly
65 70 75 80

Ser Ala Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
85 90 95

Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Thr Glu
100 105 110

Pro Ser Glu Gly Ser Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser
115 120 125

Thr Glu Glu Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
130 135 140

<210> 1610
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1610
Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro Ala
1 5 10 15

Thr Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
20 25 30

Ser Gly Pro Gly Ser Glu Pro Ala Thr Ser Gly Ser Glu Thr Pro Gly
35 40 45

Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Thr Ser Thr Glu
50 55 60

Pro Ser Glu Gly Ser Ala Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu
65 70 75 80

Ser Gly Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly
85 90 95

Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu Gly Ser Pro Ala Gly
100 105 110

Ser Pro Thr Ser Thr Glu Glu Gly Thr Ser Glu Ser Ala Thr Pro Glu
115 120 125

Ser Gly Pro Gly Thr Ser Thr Glu Pro Ser Glu Gly Ser Ala Pro Gly
130 135 140

<210> 1611
<211> 19
<212> PRT
<213> Homo sapiens

<400> 1611
Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe
1 5 10 15

Cys Phe Ser

<210> 1612
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1612
Gly Pro Glu Gly Pro Ser
1 5

<210> 1613
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1613
atgcaaatag agctctccac ctgcttcttt ctgtgccttt tgcgattctg ctttagt 57

<210> 1614
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1614
Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg
1 5 10

<210> 1615
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1615
Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg
1 5 10

<210> 1616
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1616
Ser Phe Ser Gln Asn
1 5

<210> 1617
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1617
Pro Pro Val Leu Lys Arg His Gln Arg
1 5

<210> 1618
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1618
Leu Thr Pro Arg Ser Leu Leu Val
1 5

<210> 1619
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1619
aggtgaatct ccdggtggyt cyagcggttc ygartc 36

<210> 1620
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1620
acctgaytcr gaaccgctrg arccacchgg agattc 36

<210> 1621
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1621
aggtagcgaa ggttcttcyg gtccdggyga rtcytc 36

<210> 1622
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1622
acctgargay tcrcchggac crgaagaacc ttcgct 36

<210> 1623
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1623
aggttcytcy gaaagcggtt cttcygargg yggtcc 36

<210> 1624
<211> 36
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1624
acctggaccr ccytcrgaag aaccgctttc rgarga 36

<210> 1625
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1625
aggttcyggt ggygaaccdt cygartctgg tagctc 36

<210> 1626
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1626
aggttcgtct tcactcgagg gtac 24

<210> 1627
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1627
cctcgagtga agacga 16

<210> 1628
<211> 36
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1628
aggtagcccd gcwggytctc cdacytcyac ygarga 36

<210> 1629
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1629
accttcytcr gtrgargthg gagarccwgc hgggct 36

<210> 1630
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1630
aggtagcgaa cckgcwacyt cyggytctga racycc 36

<210> 1631
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1631
acctggrgty tcagarccrg argtwgcmgg ttcgct 36

<210> 1632
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1632
aggtacytct gaaagcgcwa cycckgartc yggycc 36

<210> 1633
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 1633
acctggrccr gaytcmggrg twgcgctttc agargt 36

<210> 1634
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 1634
aggtacytct acygaacckt cygarggyag cgcwcc 36

<210> 1635
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 1635
acctggwgcg ctrccytcrg amggttcrgt agargt 36

<210> 1636
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 1636
aggttctacy agcgaatcyc cktctggyac ygcwcc 36

<210> 1637
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1637
acctggwgcr gtrccagamg grgattcgct rgtaga 36

<210> 1638
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1638
aggtacytct acycckgaaa gcggytcygc wtctcc 36

<210> 1639
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1639
acctggagaw gcrgarccgc tttcmggrgt agargt 36

<210> 1640
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1640
aggtacytcy cckagcggyg aatcttctac ygcwcc 36

<210> 1641
<211> 36

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1641
acctggwgcr gtagaagatt crccgctmgg rgargt 36

<210> 1642
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1642
aggttcyacy agctctacyg cwgaatctcc kggycc 36

<210> 1643
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1643
acctggrccm ggagattcwg crgtagagct rgtrga 36

<210> 1644
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1644
aggtacycck ggyagcggta cygcwtcttc ytctcc 36

<210> 1645
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1645
acctggagar gaagawgcrg taccgctrcc mggrgt 36

<210> 1646
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1646
aggtagctct acyccktctg gtgcwacygg ytcycc 36

<210> 1647
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1647
acctggrgar ccrgtwgcac cagamggrgt agagct 36

<210> 1648
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1648
aggttctagc ccktctgcwt cyacyggtac yggycc 36

<210> 1649
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1649
acctggrccr gtaccrgtrg awgcagamgg gctaga 36

<210> 1650
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1650
aggtgcwtcy cckggyacya gctctacygg ttctcc 36

<210> 1651
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1651
acctggagaa ccrgtagagc trgtrccmgg rgawgc 36

<210> 1652
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1652
aggtgcaagc gcaagcggcg cgccaagcac gggaggttcg tcttcactcg agggtac 57

<210> 1653
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1653
cctcgagtga agacgaacct cccgtgcttg gcgcgccgct tgcgcttgc 49

<210> 1654
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1654
Gly Ala Ser Ala Ser Gly Ala Pro Ser Thr Gly
1 5 10

<210> 1655
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1655
aggtccagaa ccaacggggc cggccccaag cggaggttcg tcttcactcg agggtac 57

<210> 1656
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1656
cctcgagtga agacgaacct ccgcttgggg ccggccccgt tggttctgg 49

<210> 1657
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1657
Gly Pro Glu Pro Thr Gly Pro Ala Pro Ser Gly
1 5 10

<210> 1658
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1658
tattcccgta cggccgccac catgcaaata gagctctcca cct 43

<210> 1659
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1659
ggtgacctcg agcgtagagg tcctgtgcct cg 32

<210> 1660
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1660
Ala Arg Gly His Pro Phe
1 5

<210> 1661
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1661
Asn Met His Thr Gly
1 5

<210> 1662
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1662
Ser Pro Ala Thr Gly
1 5

<210> 1663
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1663
gtgaactctc tagacccacc g 21

<210> 1664
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1664
ctcctcgagg tcgactcagt agaggtcctg tgcctcg 37

<210> 1665
<211> 92
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1665
cgaaagcgct acgcctgaga gtggccctgg ctctgagcca gccacctccg gctctgaaac 60

ccctgcctcg agcccaccag tcttgaaacg cc 92

<210> 1666
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1666
tgatatggta tcatcataat cgatttcctc ttgatctgac tg 42

<210> 1667
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1667
agcttgagga tccagagttc 20

<210> 1668
<211> 95
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1668
tctcaggcgt agcgctttcg cttgtcccct cttctgttga ggtgggggag ccagcaggag 60

aacctggcgc gccgttttga gagaagcttc ttggt 95

<210> 1669
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1669
tctcaaaacg gcgcgccagg tacctcagag tctgctacc 39

<210> 1670

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

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1670
tggtgggctc gaggctggcg cactgccttc 30

<210> 1671
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1671
tctcaaaacg gcgcgccagg tacctcagag tctgctacc 39

<210> 1672
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1672
tggtgggctc gaggctggcg cactgccttc 30

<210> 1673
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1673
ggggccgaaa cggccggtac ctcagagtct gctacc 36

<210> 1674
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1674
tgttcggccg tttcggcccc tggcgcactg ccttc 35

<210> 1675
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1675
ggggccgaaa cggccccggg agcgtcacc 29

<210> 1676
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1676
tgttcggccg tttcggcccc tgacccggtt gcccc 35

<210> 1677
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1677
caggacctct acggcgcgcc agcctcgagc gaacaaaaac tcatctcaga agagg 55

<210> 1678
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

primer

<400> 1678
cctcttctga gatgagtttt tgttcgctcg aggctggcgc gccgtagagg tcctg 55

<210> 1679
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1679
ctagcatgca aatagagctc tccacctgct tctttctgtg ccttttgcga ttctgcttta 60

gtgggtctcc 70

<210> 1680
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1680
acctggagac ccactaaagc agaatcgcaa aaggcacaga aagaagcagg tggagagctc 60

tatttgcatg 70

<210> 1681
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1681
atgatggcat ggaagcctat 20

<210> 1682
<211> 91
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
primer

<400> 1682
atccctcacc ttcgccagaa ccttcagaac cctcaccttc agaaccttca ccagaacctt 60

caccatcttc cgcttcttca ttatttttca t 91

<210> 1683
<211> 93
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1683
ttctggcgaa ggtgagggat ctgaaggcgg ttctgaaggt gaaggtggct ctgagggttc 60

cgaatatgat gatgatctta ctgattctga aat 93

<210> 1684
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1684
tattctctgt gaggtaccag c 21

<210> 1685
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1685
tattctctgt gaggtaccag c 21

<210> 1686
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1686
gaagctggta cctcacagag aatatacaac gctttctccc caatccaggt gaaggttctg 60

gtgaagg 67

<210> 1687
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
primer

<400> 1687
aactctggat cctcaagctg cactccagct tcggaaccct cagagcc 47

<210> 1688
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1688
Lys Leu Thr Arg Ala Glu Thr
1 5

<210> 1689
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1689
Leu Gly Pro Val Ser Gly Val Pro
1 5

<210> 1690
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1690
Gly Pro Ala Gly Leu Gly Gly Ala
1 5

<210> 1691
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1691
Gly Pro Ala Gly Leu Arg Gly Ala
1 5

<210> 1692
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1692
Ala Pro Leu Gly Leu Arg Leu Arg
1 5

<210> 1693
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1693
Pro Ala Leu Pro Leu Val Ala Gln
1 5

<210> 1694
<211> 4
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1694
Gly Gly Ser Gly
1

<210> 1695
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1695
Phe Asp Lys Leu Pro Arg Thr Ser Gly
1 5

<210> 1696
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1696
Phe Lys Leu Met Val Trp Tyr
1 5

<210> 1697
<211> 44
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<220>

<221> MOD_RES
<222> (44)..(44)
<223> Any amino acid

<220>
<223> see specification as filed for detailed description of
substitutions and preferred embodiments

<400> 1697
Xaa Gly Ala Pro Gly Ser Pro Ala Gly Ser Pro Thr Ser Thr Glu Glu
1 5 10 15

Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser Gly Pro Gly Ser Glu Pro
20 25 30

Ala Thr Ser Gly Ser Glu Thr Pro Ala Ser Ser Xaa
35 40

<210> 1698
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1698
Arg His Gln Arg Glu Ile Thr Arg
1 5

<210> 1699
<211> 288
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 1699
Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
1 5 10 15

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
20 25 30

Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
35 40 45

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Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
    50                  55                  60

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
65                  70                  75                  80

Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro
                85                  90                  95

Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro
            100                 105                 110

Gly Thr Ser Ser Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser
        115                 120                 125

Thr Gly Ser Pro Gly Ala Ser Pro Gly Thr Ser Ser Thr Gly Ser Pro
    130                 135                 140

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
145                 150                 155                 160

Pro Ser Gly Ala Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
                165                 170                 175

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
            180                 185                 190

Gly Thr Pro Gly Ser Gly Thr Ala Ser Ser Ser Pro Gly Ser Ser Thr
        195                 200                 205

Pro Ser Gly Ala Thr Gly Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala
    210                 215                 220

Thr Gly Ser Pro Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro
225                 230                 235                 240

Gly Ser Ser Pro Ser Ala Ser Thr Gly Thr Gly Pro Gly Ala Ser Pro
                245                 250                 255

Gly Thr Ser Ser Thr Gly Ser Pro Gly Thr Pro Gly Ser Gly Thr Ala
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260 265 270

Ser Ser Ser Pro Gly Ser Ser Thr Pro Ser Gly Ala Thr Gly Ser Pro
275 280 285

<210> 1700
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
6xHis tag

<400> 1700
His His His His His His
1 5